

=> file reg

FILE 'REGISTRY' ENTERED AT 09:56:46 ON 28 MAR 2003
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=> display history full 11-

FILE 'REGISTRY' ENTERED AT 09:38:51 ON 28 MAR 2003

E AL2MGO4/MF
L1 1 SEA AL2MGO4.XH2O/MF
L2 241 SEA (MG(L)AL(L)O)/ELS (L) 3/ELC.SUB
E B2MG3O6/MF
E B2MG3O6
E B2MG2O5/MF
L3 1 SEA B2MG2O5/MF
L4 28 SEA (MG(L)B(L)O)/ELS (L) 3/ELC.SUB

FILE 'HCA' ENTERED AT 09:46:15 ON 28 MAR 2003

L5 4226 SEA L1 OR MGAL2O4 OR AL2MGO4
L6 9131 SEA L2
L7 109 SEA L3 OR MG3B2O6 OR B2MG3O6 OR MG2B2O5 OR B2MG2O5
L8 195 SEA L4
L9 3 SEA L5 AND L7
L10 7 SEA (L5 OR L6) AND (L7 OR L8)
L11 7 SEA L9 OR L10
L12 23054 SEA ?BOROSILICAT?
L13 9 SEA (L7 OR L8) AND L12
L14 6 SEA L13 NOT L11
L15 82 SEA (L5 OR L6) AND L12

FILE 'CERAB' ENTERED AT 09:49:15 ON 28 MAR 2003

L16 359 SEA MGAL2O4 OR AL2MGO4 OR AL*MG*O/ET
L17 13 SEA MG3B2O6 OR B2MG3O6 OR MG2B2O5 OR B2MG2O5 OR B*MG*O/ET
L18 1365 SEA BOROSILICAT?
L19 0 SEA L16 AND L17
L20 0 SEA L17 AND L18

FILE 'REGISTRY' ENTERED AT 10:03:07 ON 28 MAR 2003

L21 1 SEA 13767-68-5
D IDE
L22 1 SEA 13703-83-8
D IDE
L23 78 SEA (MG(L)B(L)O(L)H)/ELS (L) 4/ELC.SUB

FILE 'HCA' ENTERED AT 10:06:56 ON 28 MAR 2003

L24 3007 SEA (MAGNESIUM# OR MG) (A)ALUMINATE#
L25 1077 SEA L21 OR L22 OR (MAGNESIUM# OR MG) (A) (BORATE# OR
ORTHOBORATE# OR PYROBORATE#) OR MAGIOBOR!TE#


L26 762 SEA L23
L27 36 SEA (L24 OR L5 OR L6) AND (L25 OR L7 OR L8)
L28 29 SEA L27 NOT (L11 OR L14)

FILE 'REGISTRY' ENTERED AT 09:56:46 ON 28 MAR 2003

FILE HCA

FILE COVERS 1907 - 27 Mar 2003 VOL 138 ISS 14
FILE LAST UPDATED: 27 Mar 2003 (20030327/ED)

This file contains CAS Registry Numbers for easy and accurate substance identification.

FILE CERAB  *"Ceramic Abstracts"*
FILE COVERS 1976 TO 23 MAY 1997 (970523/ED)

=> file hca

FILE 'HCA' ENTERED AT 09:58:03 ON 28 MAR 2003
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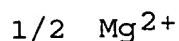
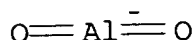
=> d l11 1-7 ibib abs hitstr hitind

L11 ANSWER 1 OF 7 HCA COPYRIGHT 2003 ACS
ACCESSION NUMBER: 137:56093 HCA
TITLE: Composite multilayer ceramic electronic component and its fabrication
INVENTOR(S): Sugimoto, Yasutaka; Chikagawa, Osamu; Mori, Naoya
PATENT ASSIGNEE(S): Murata MFG. Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 17 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002185147	A2	20020628	JP 2000-385564	20001219
PRIORITY APPLN. INFO.:			JP 2000-385564	20001219
AB A dimensionally stable composite multilayer ceramic electronic component suitable for fabrication by low-temp. firing comprises a				

highly dielec. layer (dielec. const. .gtoreq. 20) from a dielec. material contg. a primary component $\text{BaO-x}\{(1-y)\text{TiO}_2.\text{bul.}y\text{ZrO}_2\}$, 3.5 .ltoreq. x .ltoreq. 4.5 and 0 .ltoreq. y .ltoreq. 0.2, and an additive and a dielec. layer(s) having a dielec. const. .ltoreq. 10 from a ceramic and glass compn.

IT 12068-51-8, Aluminum magnesium oxide (**Al₂MgO₄**)
(oxide composite multilayer ceramic electronic component and its fabrication by low-temp. firing)
RN 12068-51-8 HCA
CN Aluminate (AlO_{21-}), magnesium (2:1) (9CI) (CA INDEX NAME)



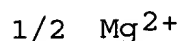
IC ICM H05K003-46
ICS H05K003-46; C04B035-443; C04B035-49; H01G004-12; H01G004-40;
H01P007-08; H01P011-00
CC 76-10 (Electric Phenomena)
IT 1303-86-2, Boron oxide, uses 1304-28-5, Barium oxide (BaO), uses
1305-78-8, Calcia, uses 1309-48-4, Magnesia, uses 1313-13-9,
Manganese dioxide, uses 1313-59-3, Sodium oxide, uses 1314-11-0,
Strontium oxide (SrO), uses 1314-13-2, Zinc oxide, uses
1314-61-0, Tantalum oxide 1314-62-1, Vanadium oxide (V_2O_5), uses
1317-38-0, Cupric oxide, uses 1344-28-1, Alumina, uses
7631-86-9, Silica, uses 12057-24-8, Lithium oxide, uses
12068-51-8, Aluminum magnesium oxide (**Al₂MgO₄**)
12136-45-7, Potassium oxide, uses 13703-83-8, Magnesium pyroborate
(**Mg₂B₂O₅**) 13767-68-5, Magnesium borate (**Mg₃B₂O₆**)
) 37305-89-8, Barium titanium zirconium oxide 115233-41-5,
Barium titanium oxide ($\text{BaTi}_{4.40}\text{Zr}_{0.8}$) 438568-59-3, Barium titanium
zirconium oxide ($\text{BaTi}_{3.44}\text{Zr}_{0.06}\text{O}_8$) 438568-60-6, Barium titanium
zirconium oxide ($\text{BaTi}_{4.27}\text{Zr}_{0.08}\text{O}_9$) 438568-61-7, Barium titanium
zirconium oxide ($\text{BaTi}_{4.32}\text{Zr}_{0.08}\text{O}_9$) 438568-62-8, Barium titanium
zirconium oxide ($\text{BaTi}_{4.37}\text{Zr}_{0.08}\text{O}_9$) 438568-63-9, Barium titanium
zirconium oxide ($\text{BaTi}_{4.42}\text{Zr}_{0.08}\text{O}_{10}$) 438568-65-1, Barium titanium
zirconium oxide ($\text{BaTi}_{3.96}\text{Zr}_{0.44}\text{O}_9$) 438568-67-3, Barium titanium
zirconium oxide ($\text{BaTi}_{3.52}\text{Zr}_{0.88}\text{O}_9$)
(oxide composite multilayer ceramic electronic component and its
fabrication by low-temp. firing)

L11 ANSWER 2 OF 7 HCA COPYRIGHT 2003 ACS
ACCESSION NUMBER: 136:138493 HCA
TITLE: Manufacture of electric insulation ceramics for
multi-layer ceramic electronic parts
INVENTOR(S): Mori, Naoya; Sugimoto, Yasutaka; Chikagawa,
Osamu
PATENT ASSIGNEE(S): Murata Mfg. Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 13 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002029834	A2	20020129	JP 2000-220867	20000721
GB 2365008	A1	20020213	GB 2001-16734	20010709
GB 2365008	B2	20021016		
US 2002030573	A1	20020314	US 2001-902949	20010711
CN 1334256	A	20020206	CN 2001-122798	20010720
			JP 2000-220867	A 20000721

PRIORITY APPLN. INFO.:
 AB The ceramics are manufd. by mixing and firing of a mixt. contg. MgAl₂O₄ type ceramics and borosilicate glass, and have a main cryst. phases of MgAl₂O₄, Mg₃B₂O₆ and/or Mg₂B₂O₅ crystal phases; or a main cryst. phases of MgAl₂O₄, Mg₂SiO₄, Mg₃B₂O₆ and/or Mg₂B₂O₅ crystal phases. Preferably, the borosilicate glass contains B₂O₃, SiO₂ and MgO.
 IT 12068-51-8, Magnesium aluminate (MgAl₂O₄) (ceramics contg.; manuf. of elec. insulation ceramics for multi-layer ceramic electronic parts)
 RN 12068-51-8 HCA
 CN Aluminate (AlO₂), magnesium (2:1) (9CI) (CA INDEX NAME)



IC ICM C04B035-443
 ICS C04B035-16; H01B003-02; H05K001-03; H05K003-46
 CC 57-2 (Ceramics)
 Section cross-reference(s): 76
 IT 10034-94-3, Magnesium silicate (Mg₂SiO₄) 12068-51-8, Magnesium aluminate (MgAl₂O₄) 13703-83-8, Magnesium borate (Mg₂B₂O₅) 13767-68-5, Magnesium borate (Mg₃B₂O₆) (ceramics contg.; manuf. of elec. insulation ceramics for multi-layer ceramic electronic parts)

L11 ANSWER 3 OF 7 HCA COPYRIGHT 2003 ACS
 ACCESSION NUMBER: 135:230583 HCA
 TITLE: Electric-insulating ceramics having good mechanical strength and high Q value for multilayer ceramic circuit board

INVENTOR(S) : Mori, Naoya; Chikagawa, Osamu
 PATENT ASSIGNEE(S) : Murata Mfg. Co., Ltd., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 13 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

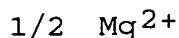
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2001247360	A2	20010911	JP 2000-60800	20000306
US 2001026864	A1	20011004	US 2001-789116	20010220
US 6403199	B2	20020611		
GB 2360036	A1	20010912	GB 2001-4704	20010226
GB 2360036	B2	20020123		
CN 1319571	A	20011031	CN 2001-108379	20010306
PRIORITY APPLN. INFO.:			JP 2000-60800	A 20000306

AB The ceramics are formed by firing a mixture containing MgO-MgAl₂O₄ type ceramic sand borosilicate glass, and have main crystalline phase of MgAl₂O₄, and .gtoreq.1 of Mg₃B₂O₆ and Mg₂B₂O₅. Preferably, the borosilicate glass contains B₂O₃, SiO₂, MgO, and alkali metal oxide.

IT 12068-51-8, Magnesium aluminate (MgAl₂O₄)
 (ceramics containing; electric-insulating ceramics having good mechanical strength and high Q value for multilayer ceramic circuit board)

RN 12068-51-8 HCA

CN Aluminate (AlO₂), magnesium (2:1) (9CI) (CA INDEX NAME)



IC ICM C04B035-443
 ICS C04B035-16; C04B035-58; H01B003-02; H01F017-00; H01G004-12;
 H01G004-40; H01L023-15; H05K003-46

CC 57-2 (Ceramics)
 Section cross-reference(s): 76

IT 13703-83-8, Magnesium borate (Mg₂B₂O₅) 13767-68-5,
 Magnesium borate (Mg₃B₂O₆)
 (ceramics containing; electric-insulating ceramics having good mechanical strength and high Q value for multilayer ceramic circuit board)

IT 1309-48-4, Magnesia, uses 12068-51-8, Magnesium aluminate (MgAl₂O₄)
 (ceramics containing; electric-insulating ceramics having good mechanical strength and high Q value for multilayer ceramic circuit board)

ACCESSION NUMBER: 132:80161 HCA
 TITLE: Filter for molten aluminum or aluminum alloy for filtration without secondary pollution
 INVENTOR(S): Hoshino, Kazutomo; Kunisaki, Toshiya; Shiraishi, Yukihiisa; Hoshi, Tomokazu
 PATENT ASSIGNEE(S): Mitsui Mining and Smelting Co., Ltd., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 5 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2000015023	A2	20000118	JP 1998-183822	19980630
PRIORITY APPLN. INFO.:			JP 1998-183822	19980630

AB This filter for filtering a molten metal, esp. molten Al or Al alloy, is made of a sintered body of a mixt. of 100 wt. parts of alumina particle and/or Al₂O₃-MgO spinel crystal particle and 5-25 wt. parts of a frit binder produced by mixing Al₂O₃-MgO spinel type crystal powder 60-90 wt.%, B₂O₃ 5-12 wt.%, and .gtoreq.1 oxides selected from Al₂O₃, MgO, and TiO₂ .ltoreq.30 wt.% and melting and quenching the mixt. As the source of B₂O₃, H₃BO₃, Al borates, and Mg borates may be used. The filter has high bending strength in a wide temp. range and can remove solid impurities, e.g. non-metallic compds., from molten metal stably for a long duration without causing secondary pollution of the molten metal.
 IT 11137-98-7, Aluminum magnesium oxide
 (spinel type; ceramic filter from spinel powder and frit binder for molten metal filtration without causing secondary pollution)
 RN 11137-98-7 HCA
 CN Aluminum magnesium oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
Mg	x	7439-95-4
Al	x	7429-90-5

IC ICM B01D039-20
 ICS B22D043-00; C04B038-00
 CC 47-2 (Apparatus and Plant Equipment)
 Section cross-reference(s): 56, 57
 IT 10043-35-3, Boric acid, processes 12005-61-7, Aluminum borate (Al₁₈B₄O₃₃) 12408-48-9, Aluminum borate (Al₄B₂O₉) 13703-82-7, Magnesium borate (mg₂b₂o₄) 13703-83-8, Magnesium borate (mg₂b₂o₅) 13767-68-5, Magnesium borate (mg₃B₂O₆)
 (as boron oxide source; ceramic filter from spinel powder and frit binder for molten metal filtration without causing secondary pollution)

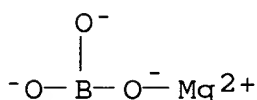
IT 11137-98-7, Aluminum magnesium oxide
(spinel type; ceramic filter from spinel powder and frit binder
for molten metal filtration without causing secondary pollution)

L11 ANSWER 5 OF 7 HCA COPYRIGHT 2003 ACS
ACCESSION NUMBER: 130:100947 HCA
TITLE: Ab initio study of the structure and stability
of L2AO3 and MAO3 carbonates, silicates,
nitrates, phosphates, borates, and aluminates (L
= Li and Na; M = Be and Mg; and A = C, Si, N+,
P+, B-, and Al-)
AUTHOR(S): Charkin, D. O.; McKee, M. L.; Charkin, O. P.
CORPORATE SOURCE: Mosk. Gos. Univ., Moscow, Russia
SOURCE: Zhurnal Neorganicheskoi Khimii (1998), 43(10),
1694-1709
CODEN: ZNOKAQ; ISSN: 0044-457X
PUBLISHER: MAIK Nauka
DOCUMENT TYPE: Journal
LANGUAGE: Russian

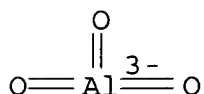
AB The authors calcd. the potential energy surfaces (PES) of the title
compds. detg. geometries, isomers' relative energies, decompn.
energies, IR frequencies and vibration intensities in the framework
of the MP2/6-31G*//HF//6-31G* + ZPE(HF/6-31G*) and
MP4SDTQ/6-31+G*//MP2/6-31G* + ZPE(MP2/6-31G*) methods.

IT 219506-27-1 219506-32-8
(MP2-MP4 study of structure and stability of L2AO3 and MAO3
carbonates, silicates, nitrates, phosphates, borates, and
aluminates (L = Li and Na; M = Be and Mg; and A = C, Si, N+, P+,
B-, and Al-))

RN 219506-27-1 HCA
CN Magnesate(1-), [orthoborato(3-)-.kappa.O] - (9CI) (CA INDEX NAME)



RN 219506-32-8 HCA
CN Aluminate (AlO33-), magnesium (1:1) (9CI) (CA INDEX NAME)



CC 65-5 (General Physical Chemistry)
IT 497-19-8, Carbonic acid disodium salt, properties 546-93-0,

Magnesium carbonate (MgCO_3) 554-13-2, Lithium carbonate (Li_2CO_3) 6834-92-0, Sodium metasilicate (Na_2SiO_3) 10102-24-6, Lithium metasilicate (Li_2SiO_3) 13106-47-3, Beryllium carbonate (BeCO_3) 13776-74-4, Magnesium metasilicate (MgSiO_3) 14902-94-4, Beryllium metasilicate (BeSiO_3) 23411-75-8 87890-91-3, Lithium carbonate (LiCO_3) 98149-94-1, Lithium nitrate ion (Li_2NO_3) 98149-95-2 194352-67-5, Sodium nitrate ion (Na_2NO_3) 208446-97-3, Lithium metasilicate (LiSiO_3) 208446-99-5, Sodium metasilicate (NaSiO_3) 219506-04-4 219506-09-9 219506-15-7 219506-20-4 219506-27-1 219506-32-8 219506-35-1 219506-42-0 219506-47-5 219506-51-1 219506-54-4 219506-58-8 219506-61-3

(MP2-MP4 study of structure and stability of L_2AO_3 and MAO_3 carbonates, silicates, nitrates, phosphates, borates, and aluminates (L = Li and Na; M = Be and Mg; and A = C, Si, N+, P+, B-, and Al-))

L11 ANSWER 6 OF 7 HCA COPYRIGHT 2003 ACS

ACCESSION NUMBER: 108:65256 HCA

TITLE: The changes of K.alpha. due to coordination state

AUTHOR(S): Fukushima, Sei; Bai, Youzhao; Goshi, Yohichi

CORPORATE SOURCE: Fac. Eng., Univ. Tokyo, Tokyo, 113, Japan

SOURCE: X-sen Bunseki no Shinpo (1986), 17, 1-22

CODEN: XBNSDA; ISSN: 0911-7806

DOCUMENT TYPE: Journal

LANGUAGE: Japanese

AB The K.alpha. lines of some elements show energy shifts corresponding to the different coordination states. To establish a coordination anal. method using this phenomenon, the shifts of K.alpha. were measured precisely by high-resoln. x-ray fluorescence spectroscopy, and the results of the measurements were interpreted by a theor. calcn. using the discrete variational-X.alpha. method. The elements discussed are Al, Mg, and Ge coordinated with O atoms. The 4-fold coordinated atom emitted lower energy K.alpha. than the 6-fold coordinated atom, for all elements. For Al and Mg, the energy regions corresponding to the 4- and 6-fold coordination states did not overlap each other. All these results were reproduced by theor. calcns. From both expts. and calcns., the detn. of the coordination state using K.alpha. shifts was possible.

IT 1302-67-6, Spinel

(x-ray fluorescence spectrum of)

RN 1302-67-6 HCA

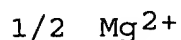
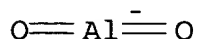
CN Spinel ($\text{Mg}(\text{AlO}_2)_2$) (9CI) (CA INDEX NAME)



IT 12068-51-8

(x-ray fluorescence spectrum of, coordination no. in relation to)

RN 12068-51-8 HCA

CN Aluminate (AlO₂⁻), magnesium (2:1) (9CI) (CA INDEX NAME)

CC 73-6 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

IT 1302-54-1, Anorthite 1302-67-6, Spinel 1318-74-7,
Kaolinite, properties 1318-95-2 1344-28-1, properties
7784-30-7 12004-88-5 12005-48-0, Sodium aluminate (NaAl₂O₃)
12005-50-4, Aluminum calcium oxide (Al₂CaO₃) 12005-57-1,
Aluminum calcium oxide (Al₂CaO₃) 12042-68-1, Aluminum calcium
oxide (Al₂CaO₃) 12042-78-3, Aluminum calcium oxide (Al₂CaO₃)
12043-53-7, Aluminum silicon oxide (Al₂SiO₅) 12068-35-8
12141-45-6, Sillimanite 12141-46-7 12168-80-8, Potassium
aluminosilicate (KAlSi₃O₈) 12183-80-1 12251-43-3, Microcline
12428-46-5 37342-39-5, Calcium aluminosilicate Ca(Al₂Si₂O₈)
61027-90-5, Mullite

(x-ray fluorescence spectrum of)

IT 1309-48-4, properties 1310-53-8, Germanium dioxide, properties
7440-56-4, Germanium, properties 12025-89-7, Germanium sodium
oxide (Ge₂Na₂O₃) 12065-44-0, Germanium sodium oxide (Ge₂Na₂O₃)
12068-51-8 12445-16-8, Aluminum germanium sodium oxide
(AlGe₃NaO₈) 13446-24-7 13573-12-1 13573-15-4 13703-83-8,
Magnesium borate (Mg₂B₂O₅) 13767-68-5, Magnesium borate
(Mg₂B₂O₅) 30734-04-4, Lithium magnesium silicate
(Li₂MgSiO₄) 62361-58-4 79553-99-4, Lithium magnesium silicate
(Li₂MgSiO₄) 82800-03-1 107250-64-6 107250-65-7
107250-66-8 107250-67-9 112488-18-3

(x-ray fluorescence spectrum of, coordination no. in relation to)

L11 ANSWER 7 OF 7 HCA COPYRIGHT 2003 ACS

ACCESSION NUMBER: 103:165025 HCA

TITLE: A study of heterogeneous alumina-magnesium
oxide-mineralizer reactions: kinetics and
mechanisms

AUTHOR(S): Packter, A.

CORPORATE SOURCE: Chem. Dep., North-East London Polytech., London,
E15 4LZ, UK

SOURCE: Verres et Refractaires (1985), 39(3), 377-80

CODEN: VERA1; ISSN: 0042-4331

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The effect of mineralizer addns. on the sintering properties of Al₂O₃-MgO spinel mixts. was examd. The Al₂O₃ particle size, mineralizer type, mineralizer content, and firing temps. were varied. The variation of rate consts. with these parameters and the reaction mechanisms are discussed. Mineralizers were most effective in mixts. contg. coarse Al₂O₃ and at temps. <1100.degree.. In mineralized mixts., a continuous reaction of the Al₂O₃ powder to form Mg aluminate occurred. The powder particles were gradually coated with a MgO-crystd. spinel-mineralized matrix. MgCl₂ was the most effective mineralization sintering aid.

IT 12007-62-4

(mineralizer, in sintering of magnesium aluminate)

RN 12007-62-4 HCA

CN Boron magnesium oxide (B₄MgO₇) (9CI) (CA INDEX NAME)

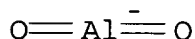
Component	Ratio	Component Registry Number
=====	=====	=====
O	7	17778-80-2
B	4	7440-42-8
Mg	1	7439-95-4

IT 1302-67-6

(sintering of, mineralizer effect on)

RN 1302-67-6 HCA

CN Spinel (Mg(AlO₂)₂) (9CI) (CA INDEX NAME)



CC 57-2 (Ceramics)

IT 1303-86-2, uses and miscellaneous 7786-30-3, uses and
 miscellaneous 10043-52-4, uses and miscellaneous 11078-52-7
 12007-62-4 12032-30-3 13568-63-3 13568-68-8
 13573-13-2 13703-83-8 13767-68-5 13776-74-4
 (mineralizer, in sintering of magnesium aluminate)

IT 1302-67-6

(sintering of, mineralizer effect on)

=> d 114 1-6 ibib abs hitstr hitind

L14 ANSWER 1 OF 6 HCA COPYRIGHT 2003 ACS

ACCESSION NUMBER: 138:28129 HCA

TITLE: Low temperature-fired ceramics for circuit
 boards

INVENTOR(S): Sumi, Yasushi; Mizutani, Hidetoshi; Suzumura,

PATENT ASSIGNEE(S): Shinji; Sato, Manabu
 SOURCE: NGK Spark Plug Co., Ltd., Japan
 Jpn. Kokai Tokkyo Koho, 6 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002356368	A2	20021213	JP 2001-167069	20010601
PRIORITY APPLN. INFO.:			JP 2001-167069	20010601
AB The ceramics are formed by: mixing a powder mixt. contg. glass powders (contg. SiO ₂ , Al ₂ O ₃ , MgO and B ₂ O ₃) and inorg. powder having main component of Mg-contg. composite oxide and/or MgO, and firing at 850-1050.degree.. The ceramics contain crystal phases of cordierite and Mg₂B₂O₅ . The ceramics have thermal expansion coeff. 5-9 ppm/.degree. at 30-400.degree., sp. dielec. const. .ltoreq.7%, and dielec. loss at 10 GHz resonance frequency .ltoreq.0.002.				
IC ICM C04B035-195 ICS H01B003-02; H05K001-03; H05K003-46				
CC 57-2 (Ceramics) Section cross-reference(s): 76				
IT 1309-48-4, Magnesia, processes 12788-79-3, Aluminoborosilicate 15118-03-3, Forsterite (raw materials contg.; for manuf. of low temp.-fired ceramics for circuit boards)				

L14 ANSWER 2 OF 6 HCA COPYRIGHT 2003 ACS
 ACCESSION NUMBER: 136:283082 HCA
 TITLE: Dielectric ceramic/glass composition for microwave or milliwave bands
 INVENTOR(S): Sugimoto, Yasutaka; Chikagawa, Osamu; Mori, Naoya
 PATENT ASSIGNEE(S): Murata Manufacturing Co. Ltd., Japan
 SOURCE: U.S. Pat. Appl. Publ., 14 pp.
 CODEN: USXXCO
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2002037804	A1	20020328	US 2001-910352	20010720
US 6458734	B2	20021001		
JP 2002097072	A2	20020402	JP 2001-166653	20010601
GB 2366563	A1	20020313	GB 2001-16838	20010710
GB 2366563	B2	20020724		
CN 1334569	A	20020206	CN 2001-124410	20010719

PRIORITY APPLN. INFO.:

JP 2000-220866 A 20000721

JP 2001-166653 A 20010601

AB A dielec. ceramic compact is provided which can be obtained by sintering at a low temp. of .ltoreq.1000.degree., can be obtained by co-sintering a dielec. ceramic compn. with a metal having superior elec. cond., such as Ag, and has a high relative dielec. const., a high Q, and a small temp. coeff. of dielec. properties. The dielec. ceramic compn. combines an $x\text{BaO}-y\text{TiO}_2-z\text{ReO}_3/2$ ceramic compn. and a glass compn.; wherein 8 .ltoreq. x .ltoreq. 18, 52.5 .ltoreq. y .ltoreq. 65, 20 .ltoreq. z .ltoreq. 40, in which x, y, and z represent mol.%, $(x+y+z) = 100$, and Re indicates a rare earth element such as Nd, Sm, and Pr, and the glass compn. comprises SiO_2 10-25, B_2O_3 10-40, MgO 25-55, ZnO 0-20, Al_2O_3 0-15, Li_2O 0.5-10, and RO 0-10 wt.% in which R is at least one element selected from Ba, Sr and Ca. The dielec. ceramic may contain also CuO and TiO_2 .

IT 183384-10-3, Magnesium borate oxide ($\text{Mg}_2(\text{BO}_2)_2\text{O}$)
(crystal phase in dielec. ceramic; dielec. ceramic/glass compn. for microwave or milliwave bands)

RN 183384-10-3 HCA

CN Magnesium borate oxide ($\text{Mg}_2(\text{BO}_2)_2\text{O}$) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====+=====+=====		
O	1	17778-80-2
BO2	2	14100-65-3
Mg	2	7439-95-4

IC ICM C04B035-468

NCL 501139000

CC 57-2 (Ceramics)

Section cross-reference(s): 76

ST dielec ceramic barium titanate **borosilicate** glass
microwave

IT **Borosilicate** glasses
(magnesium **borosilicate**; dielec. ceramic/glass compn. for microwave or milliwave bands)

IT 1304-28-5, Barium oxide, uses 1305-78-8, Calcium oxide, uses 1314-11-0, Strontium oxide, uses 1314-13-2, Zinc oxide (ZnO), uses 1344-28-1, Alumina, uses 12057-24-8, Lithium oxide (Li_2O), uses (component of magnesium **borosilicate** glass; dielec. ceramic/glass compn. for microwave or milliwave bands)

IT 1303-86-2, Boron oxide (B_2O_3), uses 1309-48-4, Magnesium oxide (MgO), uses 7631-86-9, Silica, uses (component of magnesium **borosilicate** glass; dielec. ceramic/glass compn. for microwave or milliwave bands)

IT 10034-94-3, Magnesium silicon oxide (Mg_2SiO_4) 12009-31-3, Barium titanium oxide (BaTi_4O_9) 12032-52-9, Magnesium titanium oxide (Mg_2TiO_4) 12036-69-0, Titanium zinc oxide (TiZn_2O_4) 12037-09-1, Titanium zinc oxide ($\text{Ti}_3\text{Zn}_2\text{O}_8$) 12047-64-2, Barium titanium oxide ($\text{Ba}_2\text{Ti}_9\text{O}_{20}$) 12068-53-0, Aluminum zinc oxide (Al_2ZnO_4) 13767-68-5 183384-10-3, Magnesium borate oxide ($\text{Mg}_2(\text{BO}_2)_2\text{O}$)

(crystal phase in dielec. ceramic; dielec. ceramic/glass compn.
for microwave or milliwave bands)

L14 ANSWER 3 OF 6 HCA COPYRIGHT 2003 ACS
 ACCESSION NUMBER: 136:138488 HCA
 TITLE: Glass ceramic composites having high thermal
 expansion coefficient and low specific
 dielectric constant for insulators
 INVENTOR(S): Chikagawa, Osamu
 PATENT ASSIGNEE(S): Murata Mfg. Co., Ltd., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 12 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 2
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002029826	A2	20020129	JP 2000-220868	20000721
GB 2365007	A1	20020213	GB 2001-16582	20010706
GB 2365007	B2	20020626		
US 2002027018	A1	20020307	US 2001-909337	20010719
CN 1334255	A	20020206	CN 2001-122799	20010720
PRIORITY APPLN. INFO.:			JP 2000-220868 A	20000721
			JP 2000-220869 A	20000721

AB The ceramics contain: (A) **Mg3B2O6** type and/or
Mg2B2O5 type ceramic powder, and (B) a glass powder contg.
 SiO2 13-50, B2O3 8-60, Al2O3 0-20, and MgO 10-55 wt.%. Preferably,
 the ceramic powder and the glass powder have a wt. ratio of: 20:80
 to 80:20. The ceramics. are esp. suitable for multi-layer circuit
 board substrates.

IC ICM C04B035-053
 ICS H01B003-02; H01F027-00; H01F017-00; H01G004-12; H01G004-30;
 H01G004-40; H05K003-46

CC 57-2 (Ceramics)
 Section cross-reference(s): 76

IT **Aluminoborosilicate** glasses
 (magnesium **aluminoborosilicate** glass, composites
 contg.; glass ceramic composites having high thermal expansion
 coeff. and low specific dielec. const. for insulators)

IT 13703-83-8, Magnesium borate (**Mg2B2O5**) 13767-68-5,
 Magnesium borate (**Mg3B2O6**)
 (composites contg.; glass ceramic composites having high thermal
 expansion coeff. and low specific dielec. const. for insulators)

L14 ANSWER 4 OF 6 HCA COPYRIGHT 2003 ACS
 ACCESSION NUMBER: 126:267358 HCA
 TITLE: Contributions of alumina and magnesia to
 crystallization characteristics of some lithium
borosilicate glasses
 AUTHOR(S): Salama, Samia N.; Salman, S.M.; Darwish, Hussein

CORPORATE SOURCE: Glass Research Department, National Research
Centre, Cairo, Egypt
SOURCE: Silicates Industriels (1996), 61(11-12), 263-271
CODEN: SIINAT; ISSN: 0037-5225
PUBLISHER: Silicates Industriels
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The effect of thermal treatment on the crystn. characteristics and phase compn. of lithium **borosilicate** glasses, with some Al₂O₃/-B₂O₃ and/or MgO/Li₂O replacements, were examd. by DTA, X-ray anal. and SEM (SEM). On partial Al₂O₃/B₂O₃ replacement, .beta.-eucryptite ss was the major phase formed at the expense of lithium diborate and lithium disilicate phases. Lithium meta silicate, however, was formed instead of the lithium disilicate. Varieties of lithium borate phases including lithium diborate Li₂O.2B₂O₃ with .alpha.-quartz were crystd. The crystn. of various boron-contg. phases was related to the change of Li₂O/B₂O₃ ratio present in the glasses. Magnesium borate phase **Mg₂B₂O₅** was formed as well due to the combined presence of Al₂O₃/B₂O₃ and MgO/Li₂O. The crystn. and compatibility of the phases formed in relation to the contributions of the glass oxide constituents and thermal treatment are discussed.

CC 57-1 (Ceramics)
ST **borosilicate** glass crystn alumina magnesia
IT Crystallization
(contributions of alumina and magnesia to crystn. characteristics of some lithium **borosilicate** glasses)
IT Glass ceramics
(contributions of alumina and magnesia to crystn. characteristics of some lithium **borosilicate** glasses)
IT **Borosilicate** glasses
(lithium **borosilicate**; contributions of alumina and magnesia to crystn. characteristics of some lithium **borosilicate** glasses)
IT 1309-48-4, Magnesia, processes 1344-28-1, Aluminum oxide (Al₂O₃), processes
(contributions of alumina and magnesia to crystn. characteristics of some lithium **borosilicate** glasses)

L14 ANSWER 5 OF 6 HCA COPYRIGHT 2003 ACS
ACCESSION NUMBER: 126:254231 HCA
TITLE: Crystallization dynamics in MgO-B₂O₃-SiO₂ slag
AUTHOR(S): Zhang, Peixin; Sui, Zhitong
CORPORATE SOURCE: Division of Materials Physicochemistry,
Northeastern Univ., Shenyang, 110006, Peop. Rep.
China
SOURCE: Guisuanyan Xuebao (1996), 24(5), 558-563
CODEN: KSYHA5; ISSN: 0454-5648
PUBLISHER: Zhongguo Guisuanyan Xuehui
DOCUMENT TYPE: Journal
LANGUAGE: Chinese
AB Dynamic crystn. process of MgO-B₂O₃-SiO₂ slag using in situ heating

transmission electron microscopy (TEM) is described. The crystn. process is divided in two steps, involved both in the electron irradiated region and in the electron non-irradiated region: (1) phase sepn., and (2) nucleation and growth of crystals. 2MgO.B2O3 ppts. prior to pptn. of 3MgO.B2O3. The crystn. process is sensitive to the electron beam illumination. In the electron irradiated region, the phase sepn. occurs already at 300.degree.C, however, in the electron non-irradiated region it occurs at about 750.degree.C.

CC 57-1 (Ceramics)

ST magnesium **borosilicate** slag crystn dynamics

IT 13703-83-8, Magnesium borate **mg2b2o5** 13767-68-5,

Magnesium borate **mg3b2o6**

(crystn. phase; crystn. dynamics in MgO-B2O3-SiO2 slag)

IT 1303-86-2, Boron oxide (B2O3), processes 1309-48-4, Magnesium

oxide (MgO), processes 7631-86-9, Silica, processes

(slag, magnesium **borosilicate**; crystn. dynamics in

MgO-B2O3-SiO2 slag)

L14 ANSWER 6 OF 6 HCA COPYRIGHT 2003 ACS

ACCESSION NUMBER: 68:8963 HCA

TITLE: Analysis of boron-containing minerals by ion exchange and complexometry

AUTHOR(S): Stolyarova, I. A.; Moizhes, I. B.

SOURCE: Trudy - Vsesoyuznyi Nauchno-Issledovatel'skii Geologicheskii Institut imeni A. P. Karpinskogo (1966), 125, 157-69

CODEN: TVGEAQ; ISSN: 0459-0856

DOCUMENT TYPE: Journal

LANGUAGE: Russian

AB Chromatographic sepn. on a cation exchanger were used to analyze the B-contg. minerals ludwigite (Mg, Fe++)2Fe+++ (O2-BO3), magioborite **Mg2B2O5**, Mg fluoroborate **Mg3(BO3)(F,OH)3.OH**, and strontiochilgardite (Ca and Sr borates contg. Cl). Dissolve 0.2-0.4 g. in 10 cc. 10% HCl, using a reflux condenser to avoid B losses. Dil. to 25 cc. with H2O, filter, wash with hot H2O to 80 cc. vol. Calcine the residue, process with HF and H2SO4 to det. SiO2. Neutralize the filtrate with NaOH to pH 1-2 and pass through a KU-2 cation exchanger, H+ form, at 15 cc./min., wash with H2O, and dil. to 250 ml. In one aliquot det. B by the mannitol method. Elute the adsorbed cations with 25 cc. 1:4 HCl, and then with 40-50 cc. H2O. Evap. to 5 cc. and make up to 250 cc. with H2O. Det. in one aliquot Ti colorimetrically with H2O2, Fe with sulfosalicylic acid, Al with aluminon, and Mn with formaldoxime or by using complexometric titration. Det. K and Na on a sep. aliquot by flame photometry. In strontiochilgardite det. Sr in the filtrate from the oxalate pptn. flame photometrically at 460.7 m.mu. by using a monochromator (CA 59: 6985d). Det. Cl and S on sep. samples by the usual methods. Analysis of the **borosilicates** datolite and tourmaline (Ca(BOH)(SiO4)B2O3) does not require previous sepn. of B. Fuse 0.2-0.4 g. with a 6-fold amt. of Na2CO3 and some KNO3. Leach with HCl, evap. to dryness, and keep for 1-2 hrs. on a water bath. Dissolve in HCl and hot water, filter the SiO2, and det. as above.

Dil. the filtrate to 250 cc., and det. cations in an aliquot by the method of Kamentseva, et al.

CC 79 (Inorganic Analytical Chemistry)

=> d 128 1-29 cbib abs hitstr hitind *(some of this will be junky in spots)*

L28 ANSWER 1 OF 29 HCA COPYRIGHT 2003 ACS

137:360105 Phosphor compositions for discharge lamps. Hoffmann, Roland; Schneider, Wolfgang; Zachau, Martin (Patent-Treuhand-Gesellschaft fuer Elektrische Gluehlampen m.b.H., Germany). Ger. Offen. DE 10122850 A1 20021114, 6 pp. (German). CODEN: GWXXBX. APPLICATION: DE 2001-10122850 20010511.

AB Phosphor compns. for use in low-pressure discharge lamps which produce light with a color temp. of 5400 K with a variation of ± 200 K and chromaticity coordinates within the region defined by the points (0.325, 0.340), (0.325, 0.360), (0.345, 0.360), and (0.345, 0.340) are described which comprise Sr₆B₅O₂₀:Eu with Sr₄Al₁₄O₂₅:Eu. The compns. may addnl. comprise Ca₁₀(PO₄)₆F₂:Sb, Mn, Cl, Gd(Zn, Mg)B₅O₁₀:Ce, Mn, and a Tb-doped green phosphor (e.g., CeMgAl₁₁O₁₉:Tb, LaPO₄:Tb, or GdMgB₅O₁₀:Ce, Tb).

IC ICM H01J061-44

ICS C09K011-71; C09K011-64; C09K011-73; C09K011-78; C09K011-80; C09K011-81

CC 73-5 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

IT 13778-59-1, Lanthanum phosphate (LaPO₄) 104663-37-8, Gadolinium **magnesium borate** (GdMgB₅O₁₀)

(cerium- and terbium-doped; phosphor compns. contg. europium-doped strontium aluminate and strontium borophosphate for discharge lamps)

IT 55070-88-7, Cerium **magnesium aluminate** (CeMgAl₁₁O₁₉)

(terbium-doped; phosphor compns. contg. europium-doped strontium aluminate and strontium borophosphate for discharge lamps)

L28 ANSWER 2 OF 29 HCA COPYRIGHT 2003 ACS

137:54411 Fluorescent Agro lamp with reduced mercury. Vose, Kelly S.; Carter, Brett A.; Oomen, Emmanuel W. J. L. (Koninklijke Philips Electronics N.V., Neth.). PCT Int. Appl. WO 2002050872 A1 20020627, 14 pp. DESIGNATED STATES: W: CN, JP; RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR. (English). CODEN: PIXXD2. APPLICATION: WO 2001-IB2460 20011207. PRIORITY: US 2000-739471 20001218.

AB An elec. lamp is described comprising an envelope having an inner surface and enclosing a discharge space filled with mercury; at least one electrode for generating UV in the discharge space; and a phosphor layer formed over the inner surface which preferably precoated with alumina to convert the UV to visible light; wherein the phosphor layer comprising a mixt. of 3 phosphors, namely, Ba **Mg Aluminate**, Ce Gd **Mg Borate**, and Ca Halophosphor is formulated to provide an output of approx.

- 2350 lm, at a color temp. of .apprx.2500K.
- IC ICM H01J061-44
ICS H01J061-42
- CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 9
- L28 ANSWER 3 OF 29 HCA COPYRIGHT 2003 ACS
- 137:39399 Plasma display panels with mixed phosphor coatings. Juestel, Thomas; Bechtel, Helmut (Philips Corporate Intellectual Property G.m.b.H., Germany). Ger. Offen. DE 10061720 A1 20020613, 10 pp. (German). CODEN: GWXXBX. APPLICATION: DE 2000-10061720 20001212.
- AB Plasma display panels are described which employ heterogeneous mixts. of .gtoreq.2 phosphors (which emit the same color) to form the color elements. By the use of .gtoreq.2 phosphors, unwanted characteristics of the phosphors can be balanced.
- IC ICM H01J017-49
ICS H01J017-02; H01J001-62; G09G003-28
- CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 73, 76
- IT 13778-59-1, Lanthanum phosphate (LaPO4) 75529-26-9, Gadolinium **magnesium borate** (GdMgB5O10)
(cerium- and terbium-activated; plasma display panels with mixed phosphor coatings contg.)
- IT 1314-36-9, Yttria, uses 12254-04-5, Barium **magnesium aluminate** (BaMgAl10O17) 13566-12-6, Yttrium vanadate (YVO4) 115968-61-1, Vanadium yttrium oxide phosphate (VO-1YO0-4(PO4)0-1) 124676-67-1, Gadolinium yttrium borate ((Gd,Y)(BO3)) 148094-18-2, Gadolinium yttrium oxide (GdYO3)
(europium-activated; plasma display panels with mixed phosphor coatings contg.)
- IT 12027-88-2, Yttrium silicate (Y2SiO5) 13709-90-5, Gadolinium borate (GdBO3) 13709-93-8, Indium borate (InBO3) 55070-88-7, Cerium **magnesium aluminate** (CeMgAl11O19)
(terbium-activated; plasma display panels with mixed phosphor coatings contg.)
- L28 ANSWER 4 OF 29 HCA COPYRIGHT 2003 ACS
- 136:254311 Doped nanoparticles. Haubold, Stephan; Haase, Marcus; Riwoitzky, Carsten; Weller, Horst; Meysamy, Heike; Ibarra, Fernando (Nanosolutions G.m.b.H., Germany). PCT Int. Appl. WO 2002020695 A1 20020314, 80 pp. DESIGNATED STATES: W: BY, CN, IL, JP, US; RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE. (German). CODEN: PIXXD2. APPLICATION: WO 2000-DE3130 20000908.
- AB Methods for producing fluorescent nanoparticles comprising doped hosts are described which entail carrying out the liq.-phase synthesis of the nanoparticles in an org. solvent. Synthesis in org. solvents allows substantially improved yields as compared to conventional synthesis in water. Owing to the narrower size distribution of the nanoparticles produced, size sepn. is not required. Nanoparticles synthesized using the methods are also

described, as are their use in marking articles and articles marked using them. App. and methods are also described for detecting the presence of the nanoparticles using fluorescence emission from them.

IT 186956-28-5P, Aluminum magnesium oxide (Al₁₁MgO₁₉)
(liq.-phase synthesis of fluorescent doped nanoparticles in org.
solvents and the nanoparticles and marking and detection methods
and app. using them)
RN 186956-28-5 HCA
CN Aluminum magnesium oxide (Al₁₁MgO₁₉) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====	=====	=====
O	19	17778-80-2
Mg	1	7439-95-4
Al	11	7429-90-5

IC ICM C09K011-08

ICS G01N021-91; G01N021-76; G07D007-00; C09D011-00; A61B005-117

CC 73-5 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 74, 78

IT 1306-23-6P, Cadmium sulfide, uses 1314-13-2P, Zinc oxide, uses
1314-36-9P, Yttria, uses 1314-96-1P, Strontium sulfide
1314-98-3P, Zinc sulfide, uses 1344-28-1P, Alumina, uses
7631-86-9P, Silica, uses 7681-82-5P, Sodium iodide, uses
7758-87-4P, Calcium phosphate (Ca₃(PO₄)₂) 7778-18-9P, Calcium
sulfate (CaSO₄) 7779-90-0P, Zinc phosphate 7783-40-6P, Magnesium
fluoride 7789-17-5P, Cesium iodide 7789-24-4P, Lithium fluoride,
uses 7789-75-5P, Calcium fluoride, uses 7790-75-2P, Calcium
tungstate (CaWO₄) 10101-39-0P, Calcium silicate (CaSiO₃)
10377-51-2P, Lithium iodide 12003-86-0P, Yttrium aluminate (YAlO₃)
12004-04-5P, Barium aluminate (BaAl₂O₄) 12005-21-9P, YAG
12007-60-2P, Lithium borate (Li₂B₄O₇) 12024-21-4P, Gallium oxide
12024-36-1P, Gadolinium gallium oxide (Gd₃Ga₅O₁₂) 12027-88-2P,
Yttrium silicate (Y₂SiO₅) 12031-43-5P, Lanthanum oxide sulfide
(La₂O₂S) 12031-63-9P, Lithium niobate 12032-36-9P, Magnesium
sulfide 12143-49-6P, Yttrium tantalate (YTaO₄) 12159-91-0P,
Germanium magnesium fluoride oxide (GeMg₄FO_{5.5}) 12233-56-6P,
Bismuth germanate (Bi₄Ge₃O₁₂) 12254-04-5P, Barium
magnesium aluminate (BaMgAl₁₀O₁₇) 12255-72-0P,
Magnesium arsenate oxide (Mg₆(AsO₄)₂O₃) 12339-07-0P, Gadolinium
oxide sulfide (Gd₂O₂S) 12340-04-4P, Yttrium oxide sulfide (Y₂O₂S)
12442-27-2P, Cadmium zinc sulfide ((Cd,Zn)S) 12505-97-4P, Boron
strontium fluoride oxide (B₁₂Sr₃F₂O₂₀) 12592-70-0P, Gallium
strontium sulfide (Ga₂SrS₄) 13466-21-2P, Barium phosphate
(Ba₂P₂O₇) 13566-12-6P, Yttrium vanadate (YVO₄) 13568-56-4P,
Lutetium vanadate (LuVO₄) 13573-11-0P, Magnesium tungstate (MgWO₄)
13597-55-2P, Strontium silicate (Sr₂SiO₄) 13597-65-4P, Zinc
silicate (Zn₂SiO₄) 13628-52-9P, Gadolinium vanadate (GdVO₄)
13709-38-1P, Lanthanum fluoride 13709-49-4P, Yttrium trifluoride
13718-55-3P, Barium chloride fluoride (BaClF) 13759-29-0P, Yttrium

oxychloride (YOCl) 13776-74-4P, Magnesium silicate (MgSiO₃)
 13778-59-1P, Lanthanum phosphate 13812-81-2P, Strontium phosphate
 (Sr₂P₂O₇) 13813-76-8P, Yttrium aluminum borate (YAl₃(BO₃)₄)
 13875-40-6P, Lanthanum oxide bromide (LaOBr) 13968-67-7P, Barium
 silicate (BaSi₂O₅) 14118-26-4P, Sodium lanthanum fluoride (NaLaF₄)
 14118-34-4P, Sodium yttrium fluoride (NaYF₄) 15640-94-5P, Sodium
 gadolinium fluoride (NaGdF₄) 20548-54-3P, Calcium sulfide
 20571-45-3P, Cadmium borate (CdB₂O₄) 21669-04-5P, Barium bromide
 fluoride (BaBrF) 23108-36-3P, Yttrium lithium fluoride (YLiF₄)
 25617-97-4P, Gallium nitride 26874-36-2P, Barium yttrium fluoride
 (BaYF₅) 26916-94-9P, Lithium lutetium fluoride (LiLuF₄)
 28042-61-7P, Potassium magnesium fluoride (KMgF₃) 31387-71-0P,
 Barium ytterbium fluoride (BaYb₂F₈) 33846-79-6P, Barium yttrium
 fluoride (BaY₂F₈) 35361-71-8P, Lithium strontium aluminum fluoride
 (LiSrAlF₆) 35362-46-0P, Lithium calcium aluminum fluoride
 (LiCaAlF₆) 37276-56-5P, Calcium strontium chloride phosphate
 (CaSr₉Cl₂(PO₄)₆) 55134-50-4P, Barium **magnesium**
aluminate (BaMg₂Al₁₆O₂₇) 69142-81-0P 71012-47-0P, Barium
magnesium aluminate (BaMgAl₁₄O₂₃) 75535-31-8P,
 Calcium chloride fluoride phosphate (Ca₅(Cl,F)(PO₄)₃) 76125-60-5P,
 Strontium aluminate (Sr₄Al₁₄O₂₅) 82992-94-7P, Calcium strontium
 sulfide (Ca₀-1Sr₀-1S) 104663-37-8P, Gadolinium **magnesium**
borate (GdMgB₅O₁₀) 106804-21-1P, Strontium magnesium
 phosphate (Sr₀-3Mg₀-3(PO₄)₂) 115968-61-1P, Vanadium yttrium oxide
 phosphate (V₀-1Y₀-4(PO₄)₀-1) 119537-26-7P, Calcium magnesium
 sulfide ((Ca,Mg)S) 122656-71-7P, Barium bromide chloride fluoride
 (BaBr_{0.5}Cl_{0.5}F) 124676-67-1P, Yttrium gadolinium borate
 (Y₀-1Gd₀-1BO₃) 126344-47-6P, Magnesium zinc fluoride
 (Mg₀-1Zn₀-1F₂) 144419-68-1P, Aluminum barium cerium magnesium
 oxide (Al₁₁(Ba,Mg)CeO₁₉) 145564-56-3P, Calcium magnesium silicate
 (Ca₀-1Mg₀-1SiO₃) 150927-51-8P, Aluminum cerium magnesium terbium
 oxide (Al₁₁Ce_{0.65}MgTb_{0.35}O₁₉) 176635-80-6P, Magnesium strontium
 (diphosphate) ((Mg,Sr)₂(P₂O₇)) **186956-28-5P**, Aluminum
 magnesium oxide (Al₁₁MgO₁₉) 225796-98-5P, Aluminum barium
 magnesium oxide (Al₂(Ba,Mg)O₄) 230313-54-9P, Yttrium gallium
 borate (Y₀-1Ga₀-1BO₃) 371759-79-4P, Aluminum calcium oxide
 silicate (Al₂Ca₂O(SiO₃)₂) 371759-82-9P, Aluminum gallium yttrium
 oxide (Al₃Ga₂Y₂O₁₂) 403818-15-5P, Barium magnesium zinc silicate
 ((Ba,Mg,Zn)₃(Si₂O₇)) 403818-18-8P, Beryllium zinc sulfate
 ((Be,Zn)(SO₄)) 403818-21-3P, Barium calcium strontium phosphate
 ((Ba,Ca,Sr)₃(PO₄)₂) 403818-24-6P, Europium gadolinium vanadium
 oxide (Eu_{0.05}Gd_{0.95}VO₄) 403818-25-7P, Europium tungsten yttrium
 oxide (Eu_{0.2}W₃Y_{1.8}O₁₂) 403818-27-9P, Gadolinium tantalum terbium
 oxide (Gd_{0.95}TaTb_{0.05}O₄)

(liq.-phase synthesis of fluorescent doped nanoparticles in org.
 solvents and the nanoparticles and marking and detection methods
 and app. using them)

L28 ANSWER 5 OF 29 HCA COPYRIGHT 2003 ACS

135:378846 Plasma display panel with a terbium (III)-activated phosphor.
 Juestel, Thomas; Spekowsius, Gerhard; Van Heusden, Syb; Oversluizen,
 Gerrit; De Zwart, Siebe (Philips Corporate Intellectual Property

- G.m.b.H., Germany). Ger. Offen. DE 10024835 A1 20011122, 6 pp.
(German). CODEN: GWXXBX. APPLICATION: DE 2000-10024835 20000519.
- AB A plasma display with improved color satn. and stability which uses Tb³⁺ activated luminescent phosphors and a Xe enriched gas mixt., is described. There is a front glass plate with dielec. (Pb glass) and protecting (MgO) layers and the substrate is covered with a red and blue luminescent substance and a green Tb³⁺ activated phosphor. A ribbed structure between the plates creates plasma cells which are filled with a noble gas mixt. (He, Ne or Kr) with 5-30 Vol.% xenon or preferably 10% Xe and 90% Ne. Electrode arrays of ITO or Ag on the front and back plates enable silent elec. discharge. The green Tb³⁺ activated phosphor is one of the following: InxGd_{1-x}BO₃:Tb (0.1toeq.x.1toeq.1), Y₂SiO₅:Tb, CeMgAl₁₁O₁₉:Tb, (Y_{1-x-y}Gd_xPry)BO₃:Tb (0.1toeq.x.1toeq.1, 0.1toeq.y.1toeq.0.05) (sic), GdMgB₅₀10:Ce, Tb or LaPO₄:Ce, Tb.
- IC ICM H01J065-04
ICS G09F009-313; C09K011-77
- CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 76
- IT 22541-20-4, Terbium(3+), uses
(Gadolinium indium borate, yttrium silicate, cerium **magnesium aluminate**, gadolinium praseodymium yttrium borate, gadolinium **magnesium borate** and lanthanum phosphate activated with; plasma panel with a Tb³⁺-activated phosphor)
- IT 7440-45-1, Cerium, uses
(gadolinium **magnesium borate** and lanthanum phosphate activated with; plasma panel with a Tb³⁺-activated phosphor)
- IT 12027-88-2, Yttrium silicate (Y₂SiO₅) 55070-88-7, Cerium **magnesium aluminate** (CeMgAl₁₁O₁₉) 374563-12-9, Gadolinium indium borate ((Gd, In)(BO₃)) 374563-13-0, Gadolinium indium yttrium borate ((Gd, In, Y)(BO₃))
(terbium activated; plasma panel with a Tb³⁺-activated phosphor)
- L28 ANSWER 6 OF 29 HCA COPYRIGHT 2003 ACS
- 135:341136 Preparation of luminescent-doped inorganic nanoparticles and usage as labels for biomolecule probes. Hoheisel, Werner; Petry, Christoph; Bohmann, Kerstin; Haase, Markus; Riwotzki, Karsten (Bayer A.-G., Germany). Ger. Offen. DE 10106643 A1 20011108, 12 pp.
(German). CODEN: GWXXBX. APPLICATION: DE 2001-10106643 20010212.
PRIORITY: DE 2000-10021674 20000505.
- AB The invention concerns luminescent-doped inorg. nanoparticles that are used as labels for affinity mols. e.g. nucleic acids, antibodies, proteins, etc.; affinity mols. are directly attached to the nanoparticles or via linker groups, e.g. thiols, amines, imidazoles, mol. self-assemblies, etc. Thus europium-doped phosphoric acid, lanthanum(3+) salt (1:1) was prepd. by a previously described wet chem. method; the obtained milky dispersion was centrifuged, dialyzed and dried to obtain the desired particle size. The LaPO₄:Eu nanoparticles were coated with silica using a basic

sodium water glass soln.; sepd. by ethanol pptn., centrifugation, ultrasound dispersion, decanting and drying. The silica coated nanoparticles were amine-activated with 3-aminopropyltriethoxysilane and treated with sulfosuccinimidyl 4-(N-maleimidomethyl)cyclohexane-1-carboxylate (sulfo-SMCC) crosslinker. Antibodies to .alpha.-actin were thiol-activated in a 2-iminothiolane soln. and incubated with the treated luminescent-doped inorg. nanoparticles; the obtained luminescent probes were used to visualize actin filaments in rabbit muscles by confocal laser scanning microscopy.

IT 186956-28-5, Aluminum magnesium oxide (Al11MgO19)
(Ce, Tb doped; prepn. of luminescent-doped inorg. nanoparticles and usage as labels for biomol. probes)
RN 186956-28-5 HCA
CN Aluminum magnesium oxide (Al11MgO19) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====	=====	=====
O	19	17778-80-2
Mg	1	7439-95-4
Al	11	7429-90-5

IC ICM G01N033-52
ICS G01N033-58; C12Q001-00; C12Q001-68
CC 9-1 (Biochemical Methods)
Section cross-reference(s): 73
IT 150927-51-8, Aluminum cerium magnesium terbium oxide
(Al11Ce0.65MgTb0.35O19) 186956-28-5, Aluminum magnesium
oxide (Al11MgO19)
(Ce, Tb doped; prepn. of luminescent-doped inorg. nanoparticles and usage as labels for biomol. probes)
IT 75529-26-9, Gadolinium **magnesium borate**
(GdMgB5O10)
(doped with Ce, Tb; prepn. of luminescent-doped inorg. nanoparticles and usage as labels for biomol. probes)

L28 ANSWER 7 OF 29 HCA COPYRIGHT 2003 ACS

135:63932 Mineralogical data on magnesian borates and associated minerals from Pietroasa skarn deposit, Romania. Marincea, S. (Department of Mineralogy, Geological Institute of Romania, Bucharest, Rom.). Mineral Deposits: Processes to Processing, Proceedings of the Fifth Biennial SGA Meeting and the Tenth Quadrennial IAGOD Symposium, London, United Kingdom, Aug. 22-25, 1999, Volume 2, 1051-1054. Editor(s): Stanley, C. J. A. A. Balkema: Rotterdam, Neth. (English) 1999. CODEN: 69BDW5.

AB At Pietroasa (Bihor Massif, Apuseni Mountains, Romania) an extended area of boron-bearing magnesian skarn was identified at the contact between an Upper Cretaceous - Paleogene granodiorite body and Anisian dolostones. Beside carbonates (calcite and dolomite) primary minerals, in order of their decreasing initial abundance, include suanite, ludwigite, kotoite, forsterite, clinohumite, spinel and fluorite. A secondary paragenesis, including szaibelyite,

magnetite, brucite, chrysotile, lizardite, clinochlore, chamosite, pyroaurite, lepidocrocite and goethite superposes on the skarn areas. Both Mg silicates and **Mg borates** are Fe-poor, whereas ludwigite is aluminian, which defines an iron-deficient system. Based on carbonate geothermometry and on chem. particularities of the analyzed phases temps. between 300.degree.C and 600.degree.C at pressures between 0.6 and 3 kb can be estd. for the borate crystn.

IT 1302-67-6, Spinel
 (in boron-bearing magnesian skarns; mineralogical data on magnesian borates and assocd. minerals from Pietroasa skarn deposit, Romania)

RN 1302-67-6 HCA

CN Spinel (Mg(AlO₂)₂) (9CI) (CA INDEX NAME)



CC 53-1 (Mineralogical and Geological Chemistry)

IT 1302-67-6, Spinel 1309-38-2, Magnetite (Fe₃O₄), occurrence 1310-14-1, Goethite 1317-43-7, Brucite 12001-29-5, Chrysotile 12022-37-6, Lepidocrocite 12161-84-1, Lizardite 12173-01-2, Chamosite 12173-09-0, Clinohumite 12173-85-2, Ludwigite 12252-52-7, Clinochlore 12351-92-7, Pyroaurite 13397-26-7, Calcite, occurrence 13768-64-4, Szaibelyite 13816-82-5, Suanite 14542-23-5, Fluorite, occurrence 15118-03-3, Forsterite 16389-88-1, Dolomite, occurrence 69237-18-9, Kotoite
 (in boron-bearing magnesian skarns; mineralogical data on magnesian borates and assocd. minerals from Pietroasa skarn deposit, Romania)

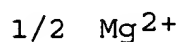
L28 ANSWER 8 OF 29 HCA COPYRIGHT 2003 ACS

134:134193 Geochemical characteristics of the genesis and composition of boron-tin mineralization in the contact aureole of Brooks Mountain, Alaska, USA. Akeksandrov, S. M.; Troneva, M. A.; Kuril'chikova, G. E. (Inst. Geokhim. i Anal. Khim. im. V. I. Vernadskogo, RAN, Moscow, 117975, Russia). Geokhimiya (8), 852-868 (Russian) 2000. CODEN: GEOKAQ. ISSN: 0016-7525. Publisher: MAIK Nauka/Interperiodica Publishing.

AB The geol. of the skarn haloes at Brooks Mtn. and Ear Mtn., the chem. compns. of B and Sn minerals in magnesian skarns subjected to postmagmatic transformation in superimposed calcareous skarns, and greisenization in the presence of restricted deposition of sulfides in metasomatites and ores. Compns. of **Mg borates** (kotoite, suanite, szaibelyite, Fe-free magnesiohulsite, and nordenskioldine) were studied and a complete isomorphous series of monoclinic ferromagnesian borates, with magnesiohulsite, hulsite,

and paigeite subgroups, was established. Compns. of orthorhombic ferromagnesian borates (ludwigites, including Al- and Ti-contg. varieties and vonsenite) and stannoborate-nordenskioldine were also detd. The most probable forms of Sn migration in hydrothermal solns. were hydroxofluorborates and hydroxofluorstannates of alkali metals and the $\text{Sn}(\text{OH})_4$ complex during the evolution of hydrothermal and epigenetic processes in the mineralogical formation of rocks and ores.

IT 1302-67-6, Spinel
 (compn.; of boron-tin mineralization in the contact aureole of Mount Brooks, Alaska)
 RN 1302-67-6 HCA
 CN Spinel ($\text{Mg}(\text{AlO}_2)_2$) (9CI) (CA INDEX NAME)



CC 53-2 (Mineralogical and Geological Chemistry)
 IT 1302-67-6, Spinel 1309-15-5, Norbergite 12173-09-0,
 Clinohumite 12173-85-2, Ludwigite 12286-81-6, Hulsite
 13768-64-4, Szaibelyite 13816-82-5, Suanite 13862-68-5, Kotoite
 ($\text{Mg}_3(\text{BO}_3)_2$) 65430-39-9, Chondrodite 108856-77-5, Ferroan
 ludwigite 108856-96-8, Magnesian vonsenite 111776-31-9,
 Magnesiohulsite 111776-32-0, Ferroan stannian ludwigite
 122826-94-2, Aluminian ludwigite 122920-43-8, Aluminian magnesian
 magnetite 272767-29-0, Magnesian stannian vonsenite 321887-09-6,
 Aluminian magnesiohulsite 321887-69-8, Aluminian titanian
 magnesiohulsite
 (compn.; of boron-tin mineralization in the contact aureole of Mount Brooks, Alaska)

L28 ANSWER 9 OF 29 HCA COPYRIGHT 2003 ACS

133:51001 Fluorescent lamp. Shimizu, Masanori; Shimomura, Youko;
 Tanabe, Yoshinori (Matsushita Electric Industrial Co., Ltd., Japan).
 Eur. Pat. Appl. EP 1009017 A2 20000614, 17 pp. DESIGNATED STATES:
 R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,
 IE, SI, LT, LV, FI, RO. (English). CODEN: EPXXDW. APPLICATION: EP
 1999-123778 19991130. PRIORITY: JP 1998-346266 19981207.

AB Two-wavelength band fluorescent lamps the main light emission of which is obtained by fluorescent substances in which the ranges of the wavelength peak of light emission are located from 470 to 540 nm and from 600 to 650 nm are described which have colors located within a range where y is not larger than $-0.43x + 0.60$ and x is not smaller than 0.16 on xy chromaticity coordinates and having Duv not lower than 5. Preferably, y is not smaller than $0.64x + 0.15$. The fluorescent lamp can perform a categorical identification of colors including at least red, green, blue, yellow and white for surface

colors of an object to be illuminated.

- IC ICM H01J061-44
 CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
 IT 1314-36-9, Yttrium oxide (Y₂O₃), uses 12254-04-5, Barium magnesium aluminate (BaMgAl₁₀O₁₇) 76125-60-5, Strontium aluminate (Sr₄Al₁₄O₂₅) 106070-29-5, Gadolinium yttrium oxide (Gd_{0.2}Y_{0.8}O₃) 106957-67-9 144920-98-9, Strontium borate metaphosphate oxide (Sr₂(BO₃)_{0.32}(PO₃)_{1.68}O_{0.68}) 211571-61-8, Cerium magnesium zinc aluminate (CeMg_{0.1}Zn_{0.1}Al₁₁O₁₉) 211571-62-9, Barium magnesium strontium aluminate (Ba_{0.1}MgSr_{0.1}Al₁₀O₁₇) 265327-22-8, Cerium gadolinium **magnesium borate** ((Ce,Gd)Mg(BO₂)₅)
 (two band fluorescent lamps using phosphors based on)

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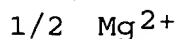
132:52291 Biomass gasification as a means for avoiding fouling and corrosion during combustion. Blander, Milton (Quest Research, South Holland, IL, 60473-3114, USA). Journal of Molecular Liquids, 83(1-3), 323-328 (English) 1999. CODEN: JMLIDT. ISSN: 0167-7322. Publisher: Elsevier Science S.A..

AB Gasification of biomass (e.g., aspen wood) at 600-800.degree.C can produce an effluent gas for use in a combustor for power prodn. after removal of the solid products of gasification by hot gas cleanup. This will avoid the fouling and/or corrosion often found in biomass combustion. Biomasses which form liqs. below 800.degree.C (e.g., wheat straw) require the use of additives which raise the lowest temps. for the presence of inorg. liqs. to over 800.degree.C. This alternative path for avoiding the fouling and corrosion found during combustion of many biomasses probably can be applied to a broad range of analogous materials.

IT 12068-51-8, **Magnesium aluminate** (MgAl₂O₄) 13767-68-5, **Magnesium borate**
 (impact of water/wood ratio and temp. on aspen wood gasification products)

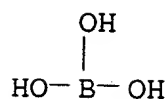
RN 12068-51-8 HCA

CN Aluminate (AlO₂1-), magnesium (2:1) (9CI) (CA INDEX NAME)



RN 13767-68-5 HCA

CN Boric acid (H₃BO₃), magnesium salt (2:3) (8CI, 9CI) (CA INDEX NAME)

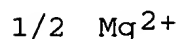


3/2 Mg

- CC 52-1 (Electrochemical, Radiational, and Thermal Energy Technology)
- IT 74-82-8, Methane, processes 124-38-9, Carbon dioxide, processes 471-34-1, Calcium carbonate, processes 630-08-0, Carbon monoxide, processes 1305-78-8, Calcium oxide, processes 1306-06-5, Hydroxylapatite (Ca₅(OH)(PO₄)₃) 1309-48-4, Magnesium oxide, processes 1333-74-0, Hydrogen, processes 4195-60-2, Calcium potassium carbonate 7440-44-0, Carbon, processes 7727-37-9, Nitrogen, processes 7783-06-4, Hydrogen sulfide, processes 12042-78-3, Aluminum calcium oxide (Al₂Ca₃O₆) **12068-51-8, Magnesium aluminate (MgAl₂O₄)** 12068-52-9, Manganese aluminate (MnAl₂O₄) **13767-68-5, Magnesium borate** 20548-54-3, Calcium sulfide 102115-99-1, Carbonic acid, calcium potassium salt (3:2:2) (impact of water/wood ratio and temp. on aspen wood gasification products)
- L28 ANSWER 11 OF 29 HCA COPYRIGHT 2003 ACS
- 132:16988 Low-pressure mercury discharge lamp with luminescent layer. Vander, Voort Dick; Verhaar, Henricus C. G.; Dorleijn, Jan W. F. (U.S. Philips Corporation, USA). U.S. US 5994831 A 19991130, 7 pp. (English). CODEN: USXXAM. APPLICATION: US 1997-920752 19970829.
- AB Low-pressure mercury discharge lamps comprising a gas-tight discharge vessel which encloses a discharge space with a Hg-contg. fill, means for maintaining an elec. discharge in the discharge space, are described in which the discharge vessel is provided with a luminescent layer; the lamp generating light during operation with a spectrum which is substantially composed of radiation in the 590-630 nm region, the 520-565 nm region, and the 430-490 nm region, wherein the radiation in the wavelength interval from 590 to 600 nm accounts for a proportional power of at least 50% of the total power radiated in the entire first wavelength region. Preferably, the luminescent layer comprises an Eu³⁺-activated (esp. borate) phosphor.
- IC ICM H01J061-44
- NCL 313486000
- CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
- IT 12254-04-5, Barium **magnesium aluminate** (BaMgAl₁₀O₁₇) 204398-72-1, Gadolinium indium borate (europium-activated; low-pressure mercury discharge lamps with luminescent layers)

- IT 7439-97-6, Mercury, uses 204398-83-4, Cerium gadolinium terbium **magnesium borate** ($\text{Ce}_{0.3}\text{Gd}_{0.5}\text{Tb}_{0.2}\text{MgB}_5\text{O}_{10}$)
251352-60-0, Europium gadolinium indium borate
($\text{Eu}_{0.04}\text{Gd}_{0.12}\text{In}_{0.84}(\text{BO}_3)$)
(low-pressure mercury discharge lamps with luminescent layers)
- L28 ANSWER 12 OF 29 HCA COPYRIGHT 2003 ACS
- 131:152763 Compact, energy-saving lamp. Tews, Walter; Roth, Gundula; Fethke, Ina; Klimke, Jens (Germany). PCT Int. Appl. WO 9941768 A1 19990819, 21 pp. DESIGNATED STATES: W: CN, JP, KR, US. (German). CODEN: PIXXD2. APPLICATION: WO 1998-DE1564 19980605. PRIORITY: DE 1998-19806213 19980216.
- AB A compact, energy-saving lamp contains in its high-std. embodiment a mixt. of luminescent substances contg., instead of the hitherto customary green components, (Ce,Tb)-activated Gd-Mg-**borate** silicate (BSCT) as green component. The higher quantum yield and stability of the borate-silicate luminescent substances leads to a luminous flux increase of up to 5 %, besides improving the effectiveness of the lamp and lengthening its service life until up to 12,000 h. In contrast with conventional lamps with a color reprodn. value $R_a(8)$ of 79-81, the disclosed compact, energy-saving lamp enables an $R_a(8)$ value of up to 85. A high-std., super-compact lamp contains a mixt. of the 3 luminescent substances BSCT, YOX and SAPE and/or BSOSE. This mixt. of luminescent substances makes it possible to achieve in compact, energy-saving lamps, color reprodn. values $R_a(8) > 87$, depending on the color temp., with a high luminous flux and long service life. The mixt. of luminescent substances of the super-C compact lamp contains, besides YOX, BSCT and SAPE, also BSCM and a mixt. of the luminescent substances BSOSE and SBOSE. This enables the IA color reprodn. level to be reached with only a slight luminous flux redn. over std. lamps. A further service life increase with a higher luminous flux in comparison with conventional lamps can be achieved by applying a protective layer, in particular a protective layer which covers the layer contg. the luminescent substances, and is preferably used when large proportions of borate-silicate luminescent substances are present. The field of application of the invention is in low-pressure gas-discharge lamps in the lighting and illumination technol.
- IC ICM H01J061-44
ICS C09K011-83; C09K011-82; C09K011-81; C09K011-80; C09K011-79; C09K011-78; C09K011-02
- CC 76-14 (Electric Phenomena)
Section cross-reference(s): 73
- ST compact energy saving lamp; luminescent compd cerium terbium activated gadolinium **magnesium borate** silicate;
protective layer luminescent compd gas discharge lamp lighting
- IT 63774-55-0, Barium **magnesium aluminate**
(Eu^{2+} -doped; in luminescent compd. in compact, energy-saving lamp)

- 130:212472 Sintered ceramic filter material for aluminum melt. Hoshino, Kazutomo; Kunisaki, Toshiya; Seto, Hideaki; Kai, Yukio; Kikuchi, Atsushi; Shiraishi, Yukihiisa; Kakimoto, Kazunobu (Mitsui Mining and Smelting Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 11057353 A2 19990302 Heisei, 6 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1997-221545 19970818.
- AB A sintered filter material for Al or Al alloy melts comprises 100 wt. parts aggregate of Al₂O₃ or Al₂O₃.cntdot.MgO spinel crystal particles and 5-25 wt. parts inorg. binder contg. Al₂O₃.cntdot.MgO spinel crystal powder 60-90, B₂O₃ 5-12, and .gtoreq.1 of Al₂O₃, MgO, and TiO₂. The av. size of particles in Al₂O₃.cntdot.MgO spinel crystal powder in the binder is .ltoreq.30 .mu.m.
- IT 1302-67-6, Spinel
(in sintered ceramic filter material for aluminum melt)
- RN 1302-67-6 HCA
- CN Spinel (Mg(AlO₂)₂) (9CI) (CA INDEX NAME)

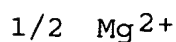


- IC ICM B01D039-20
ICS C22C001-02
- CC 56-1 (Nonferrous Metals and Alloys)
Section cross-reference(s): 57
- IT 1302-67-6, Spinel 1303-86-2, Boron oxide, uses
1344-28-1, Alumina, uses
(in sintered ceramic filter material for aluminum melt)
- IT 10043-35-3, Boric acid h₃bo₃, uses 12005-61-7, Aluminum borate
al18b4o33 12408-48-9, Aluminum borate al4b2o9 12619-64-6,
Magnesium borate
(starting material for boron oxide; in manuf. of sintered ceramic
filter material for aluminum melt)
- L28 ANSWER 14 OF 29 HCA COPYRIGHT 2003 ACS
- 129:252331 Fluorescent lamp. Okumura, Miwa; Matsuda, Naotoshi; Albessard, Keiko; Tamatani, Masaaki; Kido, Fusayoshi; Mitsuishi, Iwao (Kabushiki Kaisha Toshiba, Japan). U.S. US 5811924 A 19980922, 22 pp. (English). CODEN: USXXAM. APPLICATION: US 1996-715478 19960918. PRIORITY: JP 1995-263638 19950919; JP 1995-248205 19950927; JP 1995-251331 19950928; JP 1995-251332 19950928.
- AB Fluorescent lamps are described which are provided with a phosphor film structure comprising a phosphor film formed on the glass lamp envelope comprising ultrafine phosphor particles having an av. diam. of .ltoreq.200 nm obtained by heating a phosphor material to vaporize and rapidly quenching to solidify the vapor, and luminous layer comprising phosphor particles having an av. diam. of .gtoreq.1

.mu.m, with the haze of the phosphor film to a luminous flux of 380-760 nm in wavelength being .ltoreq.50%.

- IC ICM H01J063-04
 NCL 313487000
 CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
 IT 1312-81-8, Lanthanum oxide (La2O3) 1314-36-9, Yttria, uses 1314-96-1, Strontium sulfide (SrS) 1314-98-3, Zinc sulfide (ZnS), uses 7790-75-2, Calcium tungstate 11088-40-7, Strontium chloride phosphate (Sr5Cl(PO4)3) 12004-37-4, Strontium aluminate (SrAl2O4) 12031-43-5, Lanthanum oxide sulfide (La2O2S) 12064-62-9, Gadolinium oxide (Gd2O3) 12159-91-0, Germanium magnesium fluoride oxide (GeMg4FO5.5) 12339-07-0, Gadolinium oxide sulfide (Gd2O2S) 13597-65-4, Zinc silicate (Zn2SiO4) 13778-59-1, Lanthanum phosphate 55134-50-4, Barium **magnesium aluminate** (BaMg2Al16O27) 75535-31-8, Calcium chloride fluoride phosphate (Ca5(Cl,F)(PO4)3) 104663-37-8, Gadolinium **magnesium borate** (GdMgB5O10) 106804-21-1, Magnesium strontium phosphate ((Mg,Sr)3(PO4)2) 106957-67-9, Barium calcium magnesium chloride phosphate ((Ba,Ca,Mg)5Cl(PO4)3) 189508-09-6 (fluorescent lamps with multilayered phosphor coatings)
- L28 ANSWER 15 OF 29 HCA COPYRIGHT 2003 ACS
 128:223702 Low-pressure mercury discharge lamp. Justel, Thomas; Ronda, Cornelis Reinder (Philips Electronics N.V., Neth.; Philips Patentverwaltung G.m.b.H.; Philips Norden AB). PCT Int. Appl. WO 9808917 A1 19980305, 9 pp. DESIGNATED STATES: W: JP; RW: AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE. (English). CODEN: PIXXD2. APPLICATION: WO 1997-IB796 19970626. PRIORITY: EP 1996-202416 19960830.
- AB Low-pressure mercury discharge lamps which have emission maxima in three spectral regions and comprise a gastight radiation-transmitting discharge vessel with a gas fill comprising mercury and a rare gas and which is provided with a luminescent layer which comprises at least a first luminescent material with an emission max. in the 590-630 nm region and a second luminescent material with an emission max. in the 520-565 nm region are described in which the first luminescent material contains a compd. defined by the formula: M1xM2(1-x-y)BO3:Eu+3y in which (M1 = Sc, In, and/or Lu; M2 = Sc, Y, La, Gd, Ga, In and Lu, in which M1 differs from M2; x .gtoreq. 0; 0.01 .ltoreq. y .ltoreq. 0.2) which has a calcite lattice structure..
- IC ICM C09K011-77
 ICS C09K011-63; H01J061-44
 CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
 Section cross-reference(s): 76
 IT 204398-66-3, Cerium **magnesium borate** (gadolinium- and terbium-activated; low-pressure mercury discharge lamps using)
 IT 57035-62-8, Cerium **magnesium aluminate** (terbium-activated; low-pressure mercury discharge lamps using)

- L28 ANSWER 16 OF 29 HCA COPYRIGHT 2003 ACS
 127:41975 Fluorescent lamp with undercoat layer preventing lowering of emission efficiency. Okumura, Yoshikazu; Matsuda, Naohisa; Alvesarl, Keiko; Tamaya, Masaaki (Toshiba Corp., Japan). Jpn. Kokai Tokkyo Koho JP 09092215 A2 19970404 Heisei, 7 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1995-251332 19950928.
- AB The lamp includes a phosphor-contg. emitting layer formed on the inner surface of a glass bulb via an undercoat layer comprising phosphor ultrafine powders of av. grain size .ltoreq.150 nm.
- IC ICM H01J061-42
- CC 73-12 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
- IT 13778-59-1, Lanthanum phosphate 75529-26-9, Gadolinium **magnesium borate** (GdMgB5O10) (Ce- and Tb-activated, protective layer; fluorescent lamp with powd. phosphor-undercoat layer preventing lowering of emission efficiency)
- IT 1314-36-9, Yttria, uses 55134-50-4, Barium **magnesium aluminate** (BaMg2Al16O27) 106957-67-9 112004-31-6, Calcium strontium chloride phosphate ((Ca,Sr)5Cl(PO4)3) (Eu-activated, protective layer; fluorescent lamp with powd. phosphor-undercoat layer preventing lowering of emission efficiency)
- L28 ANSWER 17 OF 29 HCA COPYRIGHT 2003 ACS
 125:148040 Decarburization inhibitors for steel slabs. Ishibashi, Genichi; Ikeda, Masaharu; Sato, Kuniaki; Kwarada, Akira; Miki, Juji; Muraki, Hisatomi (Kawasaki Steel Co, Japan; Hakuto Kk). Jpn. Kokai Tokkyo Koho JP 08157944 A2 19960618 Heisei, 9 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1994-304993 19941208.
- AB The inhibitors contain crystallizable colloids of inorg. substances, silicates, borates, and/or phosphates with m.p. .ltoreq.1300.degree., dispersants, and, preferably, refractories. Although decarburization of slabs in high-temp. furnaces is prevented by the application of the inhibitors, surface oxidn. of the slabs remains unaffected.
- IT 1302-67-6, Spinel (decarburization inhibitors for steel slabs)
- RN 1302-67-6 HCA
- CN Spinel (Mg(AlO2)2) (9CI) (CA INDEX NAME)



- IC ICM C21D001-70
- CC 55-6 (Ferrous Metals and Alloys)

IT 409-21-2, Silicon carbide (SiC), uses 1302-67-6, Spinel
 1302-93-8, Mullite 1309-48-4, Magnesia, uses 1312-76-1, Silicic
 acid, potassium salt 1318-74-7, Kaolinite, uses 1318-93-0,
 Montmorillonite, uses 1333-73-9, Boric acid, sodium salt
 1344-09-8, Silicic acid, sodium salt 1344-95-2, Silicic acid,
 calcium salt 7632-05-5, Phosphoric acid, sodium salt 10043-83-1,
 Magnesium phosphate 10103-46-5, Calcium phosphate 12040-58-3,
 Calcium borate 12069-32-8, Boron carbide 12070-08-5, Titanium
 carbide 12070-12-1, Tungsten carbide 12183-80-1, Andalusite
 12619-64-6, **Magnesium borate** 12627-57-5,
 Molybdenum carbide 12712-38-8, Potassium borate 13717-00-5,
 Magnesite 16389-88-1, Dolomite, uses 63800-37-3, Sepiolite
 (decarburization inhibitors for steel slabs)

L28 ANSWER 18 OF 29 HCA COPYRIGHT 2003 ACS

123:203755 Catalyst composition for making synthesis gas by partial
 oxidation of hydrocarbyl. Bhattacharyya, Alakananda; Kleefisch,
 Mark S.; Udovich, Carl A. (Amoco Corp., USA). U.S. US 5439861 A
 19950808, 12 pp. Cont.-in-part of U.S. 5,246,899. (English).
 CODEN: USXXAM. APPLICATION: US 1993-48667 19930416. PRIORITY: US
 1991-745902 19910816; US 1992-993419 19921221.

AB A synthesis gas comprising hydrogen and carbon monoxide prepd. by
 partial oxidn. of hydrocarbyl compds. using a source of oxygen
 comprising mol. oxygen, carbon dioxide, their mixts. is prepd. in
 the presence of a catalyst comprising thermally stable mixts. formed
 by heat treating a hydrotalcite-like compd. The catalytic materials
 are resistant to deactivation and particularly resistant to coke
 formation in the process.

IT 61825-38-5, Aluminum magnesium oxide (Al₂Mg₄O₇)
 (catalyst; catalyst compn. for making synthesis gas by partial
 oxidn. of hydrocarbyl)

RN 61825-38-5 HCA

CN Aluminum magnesium oxide (Al₂Mg₄O₇) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====	=====	=====
O	7	17778-80-2
Mg	4	7439-95-4
Al	2	7429-90-5

IC ICM B01J020-12

ICS B01J021-16

NCL 502084000

CC 49-4 (Industrial Inorganic Chemicals)

Section cross-reference(s): 51, 67

IT 61825-38-5, Aluminum magnesium oxide (Al₂Mg₄O₇)
 168022-64-8, Aluminum magnesium rhodium oxide (Al_{1.95}Mg₄Rh_{0.05}O₇)
 168022-66-0, Aluminum magnesium rhodium oxide (Al_{1.98}Mg₄Rh_{0.02}O₇)
 168022-69-3, Aluminum magnesium rhodium oxide (Al_{1.94}Mg₄Rh_{0.06}O₇)
 168022-71-7, Aluminum magnesium rhodium oxide (Al_{1.96}Mg₄Rh_{0.04}O₇)
 168022-72-8, Iron magnesium oxide (Fe₂Mg₄O₇) 168022-73-9, Iron

magnesium borate oxide (Fe₂Mg₄(BO₂)₆O₄)

(catalyst; catalyst compn. for making synthesis gas by partial oxidn. of hydrocarbyl)

L28 ANSWER 19 OF 29 HCA COPYRIGHT 2003 ACS

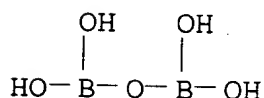
117:54572 High-strength, low-thermal conductivity inorganic porous materials, and their manufacture. Morita, Takeshi; Okamoto, Misao; Yamamoto, Manabu; Okada, Shigeru; Kasai, Junichi (Sekisui House K. K., Japan; Sanyo Kasei Kogyo K. K.). Jpn. Kokai Tokkyo Koho JP 04083771 A2 19920317 Heisei, 9 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1990-194156 19900723.

AB The porous materials, having sp. gr. .ltoreq.0.2, compressive strength .ltoreq.0.3 kg/cm², and thermal cond. .ltoreq.0.05 kcal/m-h-degree, are manufd. from metal salt of H₃PO₄, metal salt of H₃BO₃ and/or aluminates, and, optionally, a multivalent metal hydroxide and/or carbonate. The porous materials are suitable for use as sound and thermal insulators, insulators, etc. A slurry contg. Al(H₂PO₄)₃ 1000, AlPO₄ 200, hydrated Mg aluminate 500, basic Mg carbonate tetrahydrate 100, and water 1000 wt. parts was molded, and foamed to give a test product having sp. gr. 0.10, compressive strength 1.3 kg/cm², and thermal cond. 0.029 kcal/m-h-degree.

IT 13703-83-8

(compns. contg. aluminates and, for porous materials for sound and thermal insulators, for high strength and low thermal cond.)

RN 13703-83-8 HCA

CN Boric acid (H₄B₂O₅), magnesium salt (1:2) (8CI, 9CI) (CA INDEX NAME)

2 Mg

IT 11137-98-7, **Magnesium aluminate**

(compns. contg. phosphates and, for porous materials for sound and thermal insulators, for high strength and low thermal cond.)

RN 11137-98-7 HCA

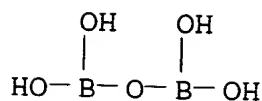
CN Aluminum magnesium oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====	=====	=====
O	x	17778-80-2
Mg	x	7439-95-4
Al	x	7429-90-5

IC ICM C04B038-00
ICS C04B038-00
CC 57-6 (Ceramics)
IT 7558-79-4 7784-30-7, Aluminum phosphate AlPO_4 12007-56-6,
Calcium tetraborate 13092-66-5, Magnesium phosphate $(\text{Mg}(\text{H}_2\text{PO}_4)_2)$
13530-50-2, Aluminum phosphate $(\text{Al}(\text{H}_2\text{PO}_4)_3)$ 13530-54-6, Aluminum
phosphate $(\text{Al}_2(\text{HPO}_4)_3)$ 13598-37-3 13703-83-8
(comps. contg. aluminates and, for porous materials for sound
and thermal insulators, for high strength and low thermal cond.)
IT 11137-98-7, **Magnesium aluminate**
12042-78-3, Calcium aluminate
(comps. contg. phosphates and, for porous materials for sound
and thermal insulators, for high strength and low thermal cond.)
L28 ANSWER 20 OF 29 HCA COPYRIGHT 2003 ACS
116:74338. Dielectric compositions of devitrified glass containing small
amounts of lead oxide and iron oxide. Hang, Kenneth W.; Prabhu,
Ashok N.; Anderson, Wayne M. (General Electric Co., USA). U.S. US
4997795 A 19910305, 7 pp. Cont.-in-part of U.S. Ser. No. 315,636,
abandoned. (English). CODEN: USXXAM. APPLICATION: US 1989-447273
19891207. PRIORITY: US 1986-914302 19861002; US 1987-87589
19870820; US 1989-315636 19890227.
AB An improved dielec. formulation for fabricating multilayer
integrated circuits comprises a frit of devitrifying glass of
Zn-Mg-Ba-Al-Zr-phosphosilicate, Zn-Mg-Ba-Al-silicate, or
Zn-Mg-Sr-Al-silicate, which are stabilized by .apprx.0.01 to
.apprx.1 wt.% each of PbO and Fe_2O_3 .
IT 11137-98-7, **Magnesium aluminate**
13703-83-8
(filler, for dielec. ink for multilayer integrated circuit
manuf.)
RN 11137-98-7 HCA
CN Aluminum magnesium oxide (9CI) (CA INDEX NAME)

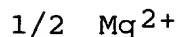
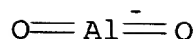
Component	Ratio	Component Registry Number
=====		
O	x	17778-80-2
Mg	x	7439-95-4
Al	x	7429-90-5

RN 13703-83-8 HCA
CN Boric acid ($\text{H}_4\text{B}_2\text{O}_5$), magnesium salt (1:2) (8CI, 9CI) (CA INDEX
NAME)



● 2 Mg

- IC ICM C03C008-04
ICS C03C008-10
NCL 501024000
CC 76-10 (Electric Phenomena)
Section cross-reference(s): 57
IT 1344-28-1, Alumina, uses 10034-94-3 11137-98-7,
Magnesium aluminate 12026-18-5
13703-83-8 26603-62-3
(filler, for dielec. ink for multilayer integrated circuit
manuf.)
- L28 ANSWER 21 OF 29 HCA COPYRIGHT 2003 ACS
115:172211 Factors determining the dielectric constants of oxides and
fluorides. Shannon, R. D. (Cent. Res. Dev. Dep., E. I. Du Pont de
Nemours and Co., Inc., Wilmington, DE, 19880-0356, USA). NIST
Special Publication, 804 (Chem. Electron. Ceram. Mater.), 457-69
(English) 1991. CODEN: NSPUE2. ISSN: 1048-776X.
- AB A preliminary set of 16 ion dielec. polarizabilities was derived
from the dielec. consts. of 63 oxides and 4 fluorides using a
least-squares-fitting procedure and the ion-additivity rule in
conjunction with the Clausius-Mosotti equation and accurately detd.
dielec. consts. and molar volumes. Assuming an arbitrary value for
.alpha.D(B3+) = 0.05 .ANG.3, anion polarizabilities of 2.01, 2.18,
and 1.63 .ANG.3 are found for O-, OH-, and F-, resp. Typical cation
polarizabilities are 0.79, 0.85, 1.31 and 3.15 .ANG.3 for Al3+,
Si4+, Mg2+ and Ca2+, resp. The agreement between measured dielec.
polarizabilities as detd. from the Clausius-Mosotti equation and
those calcd. from the sum of oxide polarizabilities and the sum of
ion polarizabilities is .apprx.0.5% for 18 oxides. The effects of
compn., structure, polar impurities, mixed valence and defects on
total polarizability are demonstrated.
- IT 12068-51-8, **Magnesium aluminate** (
MgAl2O4)
(dielec. polarizability of)
- RN 12068-51-8 HCA
CN Aluminate (AlO21-), magnesium (2:1) (9CI) (CA INDEX NAME)



- CC 76-9 (Electric Phenomena)
Section cross-reference(s): 75
- IT 10034-94-3, Magnesium silicate (Mg_2SiO_4) 10101-52-7, Zirconium silicate (ZrSiO_4) 10179-73-4, Iron silicate (Fe_2SiO_4) 12004-06-7, Beryllium aluminate (BeAl_2O_4) 12005-21-9, Aluminum yttrium oxide ($\text{Al}_5\text{Y}_3\text{O}_{12}$) **12068-51-8, Magnesium aluminate (MgAl_2O_4)** 12377-45-6 12395-49-2, Gallium scandium yttrium oxide ($\text{Ga}_3\text{Sc}_2\text{Y}_3\text{O}_{12}$) 14127-61-8, Calcium 2+, properties 14280-30-9, Hydroxide, properties 15191-85-2, Beryllium silicate (Be_2SiO_4) 15438-31-0, Iron 2+, properties 15543-40-5, Zirconium 4+, properties 16397-91-4, Manganese 2+, properties 16833-27-5, Oxide 16984-48-8, Fluoride, properties 22537-20-8, Beryllium 2+, properties 22537-21-9, Boron 3+, properties 22537-22-0, Magnesium 2+, properties 22537-23-1, Aluminum 3+, properties 22537-24-2, Silicon 4+, properties 22537-29-7, Scandium 3+, properties 22537-33-3, Gallium 3+, properties 22537-40-2, Yttrium 3+, properties 22541-19-1, Gadolinium 3+, properties 39473-29-5, Aluminum gadolinium scandium oxide ($\text{Al}_3\text{Gd}_3\text{Sc}_2\text{O}_{12}$) 39473-33-1, Aluminum scandium yttrium oxide ($\text{Al}_3\text{Sc}_2\text{Y}_3\text{O}_{12}$) 108111-13-3 117698-97-2, Gadolinium gallium oxide ($\text{Ga}_3.03\text{Ga}_4.97\text{O}_{12}$) 136441-74-2, Beryllium borate hydroxide ($\text{Be}_2(\text{BO}_3)(\text{OH})$) 136442-65-4, Iron magnesium silicate ($\text{Fe}_{0.22}\text{Mg}_{1.8}(\text{SiO}_4)$) 136442-66-5, Aluminum iron **magnesium borate** oxide ($\text{AlFe}_{0.02}\text{Mg}_{0.98}(\text{BO}_3)\text{O}$) 136442-67-6, Aluminum iron hydroxide oxide ($\text{Al}_{0.99}\text{Fe}_{0.01}(\text{OH})\text{O}$) (dielec. polarizability of)
- L28 ANSWER 22 OF 29 HCA COPYRIGHT 2003 ACS
- 111:165553 Dielectric inks for multilayer copper circuits. Hang, Kenneth W.; Prabhu, Ashok N.; Anderson, Wayne M. (General Electric Co., USA). U.S. US 4830988 A 19890516, 6 pp. Cont.-in-part of U.S. Ser. No. 914,314, abandoned. (English). CODEN: USXXAM. APPLICATION: US 1987-21052 19870302. PRIORITY: US 1986-914314 19861002.
- AB The inks comprise a devitrifying Mg-Ba-Al-Zn-borophosphosilicate glass frit, an org. vehicle and, optionally, a suitable ceramic filler material. Dielec. layers and stand-alone substrates formed from the inks are characterized by good mech. strength, heat resistance and exceptional d. The subject inks are particularly useful in the fabrication of multilayer integrated circuit structures based on Cu since their exceptional d. renders them resistant to penetration by flux materials from the Cu conductor layers.

IT 11137-98-7, **Magnesium aluminate**
 13703-83-8
 (dielec. inks contg., for fabrication of multilayer integrated circuits)

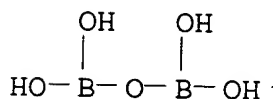
RN 11137-98-7 HCA

CN Aluminum magnesium oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====	=====	=====
O	x	17778-80-2
Mg	x	7439-95-4
Al	x	7429-90-5

RN 13703-83-8 HCA

CN Boric acid (H4B2O5), magnesium salt (1:2) (8CI, 9CI) (CA INDEX NAME)



2 Mg

IC ICM B32B003-00

ICS B32B009-00; C03C010-02; B22F007-00

NCL 501021000

CC 76-3 (Electric Phenomena)

IT 112-90-3, Oleylamine 1344-28-1, Alumina, uses and miscellaneous
 9011-15-8, Poly(isobutylmethacrylate) 10034-94-3 10101-52-7,
 Zirconium silicate 11137-98-7, **Magnesium**
aluminate 12026-18-5 13703-83-8 26603-62-3
 (dielec. inks contg., for fabrication of multilayer integrated circuits)

L28 ANSWER 23 OF 29 HCA COPYRIGHT 2003 ACS

110:81211 Dielectric inks or pigments, frits for their manufacture, multilayer integrated circuits containing dielectric layers made from those frits, and substrates for the manufacture of the integrated circuits. Hang, Kenneth Warren; Prabhu, Ashok Narayan (RCA Corp., USA). Ger. Offen. DE 3806057 A1 19880915, 7 pp. (German). CODEN: GWXXBX. APPLICATION: DE 1988-3806057 19880226. PRIORITY: US 1987-21375 19870302.

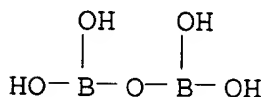
AB The title inks or pigments consist of devitrifiable ZnMgCaAl silicate frits and suitable org. binders contg. .ltoreq.30 wt.% ceramic filler. The frits consist of ZnO 11-23, MgO 20-24, CaO 4-10, Al2O3 8-15, SiO2 35-50, .ltoreq.3 PaO5, and Zr silicate .ltoreq.3 wt.%. The multilayer integrated circuits, consist of a

substrate and .gtoreq.2 superimposed structural layers of elec. conductive material sepd. by a dielec. layer, which is provided with passages, filled with elec. conductive material and connecting the elec. conductive layers with each other, and which contains 65-100 wt.% of the frit and .ltoreq.35 wt.% ceramic filler. The substrates contain 74-87 wt.% of the frit and 13-26 wt.% ceramic filler. The dielec. pigments are suitable for the manuf. of low-porosity dielec. layers without using oxidizing agents, e.g., Ba(NO₃)₂, or plasma treatment. Frits were prepd. from the ingredients by m. 1600.degree., quenching between rolls at a gap of 0.025 cm, grinding to 5 .mu.m, mixing with a ceramic filler consisting of Al₂O₃ and Ba di-Mg silicate (av. size .apprx.3 .mu.m), and org. binder consisting of a 16.5% soln. of poly(iso-Bu methacrylate) in Texanol and 1% high-mol. wt. wetting agent (N-alkyl-1,3-diaminopropane dioleate). The pigment consisted of glass 69.3%, Al₂O₃ 7.7, and org. binder 73%. After mixing, the pigments were screen-printed on Pt foil, dried on the air for .apprx.15 min, and fired in N at .apprx.900.degree. for 10 min, after which a 2nd layer was applied and fired. A typical glass compn. consisting of ZnO 17.26, MgO 20.90, CaO 8.38, Al₂O₃ 12.18, SiO₂ 37.28, P₂O₅ 2.00, and ZrSiO₄ 2.00 had coeff. of thermal expansion 71 .times. 10⁻⁷/degree at 900.degree., vs. 79.8 .times. 10⁻⁷/degree for uncoated Al₂O₃ substrate.

IT 11137-98-7, Aluminum magnesium oxide 13703-83-8
 (filler, devitrifiable frits contg., pigments contg., for dielec. interlayer for integrated circuits)
 RN 11137-98-7 HCA
 CN Aluminum magnesium oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====	=====	=====
O	x	17778-80-2
Mg	x	7439-95-4
Al	x	7429-90-5

RN 13703-83-8 HCA
 CN Boric acid (H₄B₂O₅), magnesium salt (1:2) (8CI, 9CI) (CA INDEX NAME)



2 Mg

IC ICM C09D005-25
 ICS C09D003-80; C09D007-12; H01L021-31; C03C008-04

- ICA C09D003-12; C09D003-64; C09D003-733
CC 57-1 (Ceramics)
Section cross-reference(s): 76
IT 10034-94-3 11137-98-7, Aluminum magnesium oxide
12026-18-5 13703-83-8 26603-62-3
(filler, devitrifiable frits contg., pigments contg., for dielec.
interlayer for integrated circuits)
- L28 ANSWER 24 OF 29 HCA COPYRIGHT 2003 ACS
107:67742 Fluorescent lamps. Kamiya, Shigeru; Yamamoto, Takashi; Iwama,
Katsuaki; Shibata, Haruo; Otaka, Yoshinori; Takano, Osamu;
Takahashi, Mutsuo (Matsushita Electronics Corp., Japan). Jpn. Kokai
Tokkyo Koho JP 61258892 A2 19861117 Showa, 5 pp. (Japanese).
CODEN: JKXXAF. APPLICATION: JP 1985-100744 19850513.
- AB The inner walls of lamp envelopes are coated with a mixt. of: (1) a
Eu²⁺-activated alk. earth aluminate blue-luminescent phosphor of the
general formula Ba₃-a-bEuM₁xAl_yO₃+x+(3/2)y (M = Sr, Ca, Pb; M₁ =
Mg, Zn; 0.01 .ltoreq. a .ltoreq. 1.0; 0 .ltoreq. b .ltoreq. 1.5; 3.5
< x < 5; 28 .ltoreq. y < 35); (2) a 2nd material showing a
luminescence peak at 530-550 nm; and (3) a 3rd material showing a
luminescence peak at 600-620 nm to give fluorescent lamps. The 2nd
material is preferably selected from Ce³⁺- and Tb³⁺-activated rare
earth silicate phosphors, rare earth **magnesium**
aluminate phosphors, rare earth phosphate phosphors, and
rare earth **magnesium borate** phosphors, and the
third material is preferably a Eu³⁺-activated rare earth oxide
phosphor. The fluorescent lamps show high luminosity, long
lifetime, and improved color stability during operation. A
straight-type fluorescent lamp prepd. with a blue phosphor
Ba₂.77Eu_{0.23}Mg_{4.3}Al₃₀O_{52.3} (I), a green phosphor La_{0.2}Ce_{0.5}Tb_{0.3}PO₄,
and a red phosphor (Y_{0.98}Eu_{0.02})₂O₃ showed a 3% higher luminosity
after 100 h operation over that for a conventional fluorescent lamp
fabricated by using a blue phosphor Ba₂.7Eu_{0.3}Mg₆Al₄₈O₈₁ in place of
I, and a clearly improved color stability after 1000 h operation
over that for another conventional fluorescent lamp fabricated by
using a blue phosphor Sr_{8.9}Ba_{1.0}(PO₄)₆Cl₂:Eu₂+0.1 in place of I.
- IC ICM C09K011-64
ICS H01J061-44
CC 73-5 (Optical, Electron, and Mass Spectroscopy and Other Related
Properties).
- L28 ANSWER 25 OF 29 HCA COPYRIGHT 2003 ACS
105:65087 Wear mechanism of carbon-bearing BOF refractories. Kim, E.
H.; Oh, Y. W.; Lee, C. S.; Kim, J. S.; Kim, C. H. (Tech. Res. Lab.,
Pohang Iron and Steel Co., Ltd., Pohang, S. Korea). Yoop Hakhoechi,
23(1), 51-9 (Korean) 1986. CODEN: YPHJAP. ISSN: 0372-7807.
- AB The oxidn. of C and the infiltration of slag into the structure of
basic oxygen furnace (BOF) MgO-C bricks was examd. The use of fused
MgO clinkers and high-purity C in the brick manuf. increased the
corrosion resistance and hot modulus of rupture. As the C oxidn.
reaction proceeded, slag infiltrated into the structure to react
with the MgO grains to form low-melting compds., esp. CaO.MgO.SiO₂

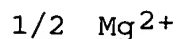
and $3\text{CaO} \cdot \text{MgO} \cdot 2\text{SiO}_2$, resulting in brick erosion. Al, Si, and B_4C addns. decrease the brick oxidn. by reducing slag permeability through the formation of Al_4C_3 , SiC , and B_2O_3 and the decrease of open porosity due to the formation of $\text{MgO} \cdot \text{Al}_2\text{O}_3$, SiO_2 , and $3\text{MgO} \cdot \text{B}_2\text{O}_3$ at the decarbonized layer.

IT 12068-51-8P

(formation of, in aluminum-doped magnesia-carbon brick decarbonized layer)

RN 12068-51-8 HCA

CN Aluminate (AlO_2^-), magnesium (2:1) (9CI) (CA INDEX NAME)

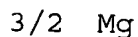
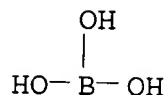


IT 13767-68-5P

(formation of, in boron carbide-doped magnesia-carbon brick decarbonized layer)

RN 13767-68-5 HCA

CN Boric acid (H_3BO_3), magnesium salt (2:3) (8CI, 9CI) (CA INDEX NAME)



CC 57-6 (Ceramics)

IT 1299-86-1P 12068-51-8P

(formation of, in aluminum-doped magnesia-carbon brick decarbonized layer)

IT 1303-86-2P, preparation 13767-68-5P

(formation of, in boron carbide-doped magnesia-carbon brick decarbonized layer)

L28 ANSWER 26 OF 29 HCA COPYRIGHT 2003 ACS

95:173966 Coordination of magnesium(2+) in oxide glasses determined by x-ray emission spectroscopy. Kawazoe, H.; Kokumai, H.; Kanazawa, T.; Gohshi, Y. (Dep. Ind. Chem., Tokyo Metrop. Univ., Tokyo, 158, Japan). Journal of Physics and Chemistry of Solids, 42(7), 579-81 (English) 1981. CODEN: JPCSAW. ISSN: 0022-3697.

AB Chem. shifts of the $\text{K}\alpha_{1,2}$ emission of Mg having octahedral or tetrahedral coordination in several oxide crystals were detd. using a high-resoln. 2-crystal spectrometer. The shift between the

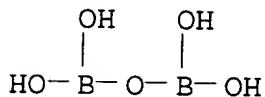
emissions from 6- and 4-coordinated Mg was .apprxeq.0.25 eV, the peak energy for 6-coordinated Mg being higher. A nearly linear relation was obtained between the shift and the Lewis basicity of the oxides. Using this relation, Mg in $xK_2O-yMgO-(100-x-y)B_2O_3$ glasses ($x + y \leq 40$ mol %) was found to be 6-coordinate, whereas in $25K_2O-25MgO-50SiO_2$ it was 4-coordinate.

IT 12068-51-8 13703-83-8 13767-68-5
 (magnesium x-ray chem. shift of, Lewis basicity in relation to)
 RN 12068-51-8 HCA
 CN Aluminate (AlO₂), magnesium (2:1) (9CI) (CA INDEX NAME)



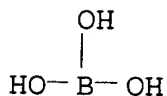
1/2 Mg²⁺

RN 13703-83-8 HCA
 CN Boric acid (H₄B₂O₅), magnesium salt (1:2) (8CI, 9CI) (CA INDEX NAME)



2 Mg

RN 13767-68-5 HCA
 CN Boric acid (H₃BO₃), magnesium salt (2:3) (8CI, 9CI) (CA INDEX NAME)



3/2 Mg

CC 57-1 (Ceramics)
 Section cross-reference(s): 73
 IT 7757-87-1 12068-51-8 13446-24-7 13573-12-1
 13573-15-4 13703-83-8 13767-68-5 30734-04-4
 66903-91-1 79553-99-4
 (magnesium x-ray chem. shift of, Lewis basicity in relation to)

L28 ANSWER 27 OF 29 HCA COPYRIGHT 2003 ACS

93:151864 Hardenable composition and its use. Blasko, John Edward; Boberski, William George; Seiner, Jerome Allan (PPG Industries, Inc., USA). Ger. Offen. DE 3005339 19800821, 21 pp. (German). CODEN: GWXXBX. APPLICATION: DE 1980-3005339 19800213.

AB Aq. solns. or dispersions of an alkali or quaternary ammonium silicate and a pigment-hardener, such as Ba metaborate (I), Ca borate, Mg aluminate, Ca silicate, Zn titanate, Ca molybdate, or Sr chromate, give coatings with good resistance to abrasion and color changes during contact with water. Thus, water 53, TiO₂ 62, I 33, green pigment 8, and additives 9.77 parts were milled, mixed with 29% K silicate soln. (3.93:1.0 SiO₂-K₂O) 350, mica 76, and Mg aluminosilicate 10 parts, coated on glass, and dried for 5 days.

IT 11137-98-7

(hardener-pigments, for alkali silicate coatings)

RN 11137-98-7 HCA

CN Aluminum magnesium oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====	=====	=====
O	x	17778-80-2
Mg	x	7439-95-4
Al	x	7429-90-5

IC C08L083-02; C09D001-02

CC 42-10 (Coatings, Inks, and Related Products)

IT 1344-95-2 7789-06-2 11104-48-6 11121-16-7 11129-08-1
11137-98-7 12040-58-3 12651-25-1 13701-59-2
51845-81-9

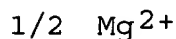
(hardener-pigments, for alkali silicate coatings)

L28 ANSWER 28 OF 29 HCA COPYRIGHT 2003 ACS

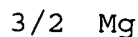
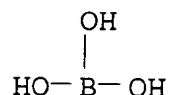
92:225970 Spectrographic determination of impurities in ammonium bifluoride. III. Study of the processes of vaporization, transport, and excitation of the elements aluminum, boron, copper, and chromium. Alduan, F. A.; Capdevila, C.; Roca, M. (Div. Quim. Medio Ambiente, Junta Energ. Nucl., Spain). Anales de Quimica (1968-1979), 75(11), 873-9 (Spanish) 1979. CODEN: ANQUBU. ISSN: 0365-4990.

AB The influences of vaporization, transport, and excitation on the shape of the volatilization-excitation curves and on the values of the spectral line intensities were investigated in a method for the detn. of traces of Al, B, Cu, and Cr in NH₄HF₂ samples by d.c. arc excitation in Scribner-type electrodes, with addn. of different matrixes (graphite, Ga₂O₃, GeO₂, MgO, and ZnO). The reaction products in the electrode cavity were identified by x-ray powder diffraction anal. and the percentages of vaporized and diffused element evaluated by anal. by total-burning spectrog. methods. In addn., the values of both the no. of particles entering the

discharge column and the transport efficiencies were calcd.
 IT 12068-51-8P
 (formation of, in spectrog. arc during anal. of ammonium
 bifluoride)
 RN 12068-51-8 HCA
 CN Aluminate (AlO₂⁻), magnesium (2:1) (9CI) (CA INDEX NAME)



IT 13767-68-5P
 (formation of, in spectrog. arc during excitation of ammonium
 sulfate)
 RN 13767-68-5 HCA
 CN Boric acid (H₃BO₃), magnesium salt (2:3) (8CI, 9CI) (CA INDEX NAME)



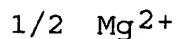
CC 79-6 (Inorganic Analytical Chemistry)
 IT 1317-39-1P, preparation 1344-28-1P, analysis 7784-18-1P
 12018-19-8P 12053-26-8P 12053-29-1P 12068-51-8P
 12068-53-0P 12228-10-3P
 (formation of, in spectrog. arc during anal. of ammonium
 bifluoride)
 IT 1303-86-2P, preparation 7783-20-2P, preparation 7784-25-0P
 10043-01-3P 12007-72-6P 12012-35-0P 13767-68-5P
 (formation of, in spectrog. arc during excitation of ammonium
 sulfate)
 L28 ANSWER 29 OF 29 HCA COPYRIGHT 2003 ACS
 89:156472 Phosphor lamp. Hase, Takashi; Takanashi, Akiyuki (Dainippon
 Torco Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 53054183
 19780517 Showa, 9 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP
 1976-129732 19761028.
 AB The phosphor is (Ba_{1-x}Mg_x)O.y(Al_{1-z}Bz)₂O₃:aEu,b Mn(0 .ltoreq. x
 .ltoreq. 1, 1 .ltoreq. y .ltoreq. 20, 0 .ltoreq. z .ltoreq. 0.1,
 0.001 .ltoreq. a .ltoreq. 0.2, 0.001 .ltoreq. b .ltoreq. 0.5). It
 is used in a high-pressure Hg lamp fluorescing in the spectral
 blue-green region. Thus, BaCO₃ 22.2, Mg(OH)₂.3MgCO₃.3H₂O 21.2,

Al(OH)₃ 148.2, B₂O₃ 3.48, Eu₂O₃ 2.2, MnCl₂·4H₂O 3.5, and NaF 2.7 g were ball-milled, heated at 1500.degree. for 3 h, powd., and heated again at 1200.degree. for 1 h in a carbonaceous atm. The emission intensity of the product was 105% of a product not contg. B₂O₃.

IT 12068-51-8D, solid solns. with barium **magnesium aluminate** borates
(phosphors, contg. europium and manganese, for fluorescent lamps)

RN 12068-51-8 HCA

CN Aluminate (AlO₂⁻), magnesium (2:1) (9CI) (CA INDEX NAME)



IC C09K011-46

CC 76-7 (Electric Phenomena)

ST barium **magnesium aluminate** borate phosphor;
fluorescent lamp phosphor; europium activated lamp phosphor;
manganese activated lamp phosphor

IT Phosphors
(barium **magnesium borate** aluminate, contg.
europium and manganese)

IT 7439-96-5, uses and miscellaneous 7440-53-1, uses and
miscellaneous
(phosphors from barium **magnesium aluminate**
borates contg., for fluorescent lamps)

IT 12004-04-5D, solid solns. with barium **magnesium**
aluminate borates 12068-51-8D, solid solns. with
barium **magnesium aluminate** borates
13701-59-2D, solid solns. with barium **magnesium**
aluminate borates 13703-82-7D, solid solns. with barium
magnesium aluminate borates
(phosphors, contg. europium and manganese, for fluorescent lamps)